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EDISON BULLETIN

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APRIL, 1936

Commercial Men Record New Triumphs . . . . . C. E. GREENWOOD 101

The Sales Challenge of Today . . . . . E. W. LLOYD 103

Market Development . . . . . WILLIAM H. HODGE 105

"Keep 'Em Sold by Constant Selling" . . . . . H. C. THUERK 107

The Contractor and the Utility . . . . . EARL N. PEAK 109

Standardized Light Prescribing Technique . . . . . EARL L. CANFIELD 111

Our Air Conditioning Market . . . . . C. E. MICHEL 115

An Approach to Air Conditioning Sales . . . . . L. R. BOULWARE 117

The Status of Industrial Power Development . . . . . H. C. WEBB, JR. 119

The Electric Range Market—Today and Tomorrow . . . . REESE MILLS 123

Intensified Selling in the Low Income Groups . . . . . C. A. COLLIER 125

New Approaches to the Electrical Market . . . . . C. E. WILSON 129

Business Development in California . . . . . R. C. McFADDEN 132

Commercial Progress Viewed from the Field . . . . . DR. G. W. ALLISON 135

Electric Appliance Saturation in U. S. Compared with Certain European Countries 104

Saint Louis—The Institute's 1936 Convention City 139

Judges Appointed for Prize Contests 143

The Flood at Hartford 145

Refrigerator Sales, 131—Power Sales Items, 155—
Conventions and Meetings, 156

EDISON ELECTRIC INSTITUTE

STATISTICAL DATA OF THE ELECTRIC LIGHT AND POWER INDUSTRY

Compiled Monthly by the Edison Electric Institute—Covers 100% of the Industry

DURING THE MONTH OF FEBRUARY (Preliminary)

	1936	1935	%
Kilowatt-hours Generated* (Net)			
By Fuel	5,345,065,000	4,233,544,000	+26.3
By Water Power	2,643,210,000	2,735,557,000	− 3.4
Total Kilowatt-hours Generated	7,988,275,000	6,969,101,000	+14.6
Additions to Supply			
Energy Purchased from Other Sources	152,926,000	167,090,000	− 8.5
Net International Imports	66,398,000	78,071,000	−15.0
Total	219,324,000	245,161,000	−10.5
Deductions from Supply			
Energy used in Electric Railway Departments	58,765,000	59,686,000	− 1.5
Energy used in Electric and Other Departments	122,948,000	106,081,000	+15.9
Total	181,713,000	165,767,000	+ 9.6
Total Energy for Distribution	**8,025,886,000**	**7,048,495,000**	**+13.9**
Energy Lost in Transmission, Distribution, Etc.	**1,026,853,000**	**854,684,000**	**+20.1**
Kilowatt-hours Sold to Ultimate Consumers	**6,999,033,000**	**6,193,811,000**	**+13.0**
Sales to Ultimate Consumers (kw-hrs)			
Domestic Service	1,340,441,000	1,211,438,000	+10.6
Commercial—Small Light and Power (Retail)	1,323,605,000	1,164,101,000	+13.7
Commercial—Large Light and Power (Wholesale)	3,513,534,000	3,102,791,000	+13.2
Municipal Street Lighting	218,549,000	212,900,000	+ 2.7
Railroads—Street and Interurban	435,203,000	391,263,000	+11.2
Railroads—Electrified Steam	95,545,000	62,049,000	+54.0
Municipal and Miscellaneous	72,156,000	49,269,000	+46.5
Total Sales to Ultimate Consumers	6,999,033,000	6,193,811,000	+13.0
Total Revenue from Ultimate Consumers	$171,219,500	$162,469,900	+ 5.4

DURING TWELVE MONTHS ENDING FEBRUARY 29th

Kilowatt-hours Generated* (Net)			
By Fuel	57,877,586,000	53,442,538,000	+ 8.3
By Water Power	36,364,896,000	32,224,871,000	+12.8
Total Kilowatt-hours Generated	94,242,482,000	85,667,409,000	+10.0
Purchased Energy (net)	3,001,292,000	2,971,020,000	+ 1.0
Energy Used in Electric Railway and Other Departments	1,944,520,000	2,002,811,000	− 2.9
Total Energy for Distribution	**95,299,254,000**	**86,635,618,000**	**+10.0**
Energy Lost in Transmission, Distribution, etc.	**16,129,736,000**	**14,868,021,000**	**+ 8.5**
Kilowatt-hours Sold to Ultimate Consumers	**79,169,518,000**	**71,767,597,000**	**+10.3**
Total Revenue from Ultimate Consumers	**$1,938,865,900**	**$1,852,714,800**	**+ 4.6**
Important Factors			
Percent of Energy Generated by Waterpower	38.6%	37.6%	
Domestic Service (Residential Use)			
Average Annual Consumption per Customer (kw-hr)	683	637	+ 7.2
Average Revenue per kw-hr (Cents)	4.96¢	5.26¢	− 5.7
Average Monthly Bill per Domestic Customer	$2.82	$2.79	+ 1.1

BASIC INFORMATION AS OF FEBRUARY 29th

Generating Capacity (kw)—Steam	24,013,000	23,765,900	
—Waterpower	9,007,300	8,952,100	
—Internal Combustion	497,400	500,800	
Total Generating Capacity in Kilowatts	33,517,700	33,218,800	
Number of Customers			
Farms in Eastern Area (Included with Domestic)	(581,452)	(534,849)	
Farms in Western Area (Included with Commercial—Large)	(217,316)	(209,957)	
Domestic Service	21,104,166	20,503,594	
Commercial—Small Light and Power	3,751,002	3,736,939	
Commercial—Large Light and Power	493,901	499,560	
Other Ultimate Consumers	69,160	69,681	
Total Ultimate Consumers	25,418,229	24,809,774	

* By courtesy of the U. S. Geological Survey with deductions for certain plants not considered Electric Light and Power Enterprises.

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EDISON ELECTRIC INSTITUTE BULLETIN

Volume IV APRIL, 1936 No. 4

Commercial Men Record New Triumphs and Take Inventory

By C. E. Greenwood

Commercial Director, Edison Electric Institute

MR. STEINMETZ

SPLENDID—most successful sales meetings! That was the consensus of opinion among approximately 425 persons attending the Third Annual Sales Conference at the Edgewater Beach Hotel, Chicago, March 25-26, and the First Industrial Power Sales Conference on March 23-24, both under the sponsorship of the Sales Committee of the Edison Electric Institute. Commercial executives, power sales engineers, manufacturers and representatives of other branches of the industry, and of other associations, convened from 28 states to listen to interesting papers and discussions pertinent to the load-building efforts of the utility company. It was gratifying to find some of our utility women in the audience.

Two major meetings had been heralded. The National Industrial Power Sales Conference was the first get-together of its kind and its success justifies the practice of annual repetition. All sessions were "closed" to all but utility men in order that selling handicaps and the problems of competition might be intimately discussed. The power program was prepared by a subcommittee of the Industrial Power and Heating Committee headed by J. F. Gaskill of the Philadelphia Electric Company. The Chairman of that committee—H. C. Webb, Jr., general chairman of this Power Conference of somewhat over 100 men—is to be congratulated for his effective and sympathetic guidance.

H. P. J. Steinmetz, Chairman of the Sales Committee, formally opened the conference and introduced Mr. Webb. The power program over the two-day session included presentations on Industrial Sales by G. E. Whitwell, Vice-President of the Philadelphia Electric Company, with the prepared discussions on General Competition by H. C. Thuerk, The Utility Management Corporation; on Steam Competition by Maxwell Cole, Philadelphia Electric Company, and F. W. Boldenweck, Commonwealth Edison Company. There were prepared discussions on Internal Combustion Competition by J. S. McMillen, Northern States Power Company; E. L. Kavanaugh, Detroit Edison Company, and Charles Snyder, Monongahela West Penn Public Service Company.

W. H. Hodge, Vice-President of the Byllesby Engineering and Management Corporation, presented the subject of Industrial Load Building, which was

MR. GREENWOOD

followed by prepared discussions by W. H. Sammis, The Commonwealth and Southern Corporation, on Relations with the Existing Customer; by H. E. Meade, New Orleans Public Service, Inc., on Organization and Personnel, and by J. H. Scott, American Gas and Electric Company, on Market Analysis.

The important subject of Sales Promotion and Advertising was covered by C. P. Yoder, Buffalo Niagara and Eastern Power Corporation, on Promoting and Advertising Industrial Heating; G. B. Koch, Kansas City Power & Light Company, spoke on Promoting and Advertising Commercial Cooking and Baking, and C. E. Michel, Union Electric Light and Power Company, on Promoting and Advertising Commercial and

Industrial Air Conditioning; O. R. Hogue, Commonwealth Edison Company, presented Promoting and Advertising Industrial Lighting, and O. A. Jennings, Oklahoma Gas and Electric Company, discussed Promoting and Advertising Industrial Electrification.

Ample time was given to general discussion from the floor. In view of the confidential nature of many of these valuable presentations, it is regretted that all of them will not be published.

National Sales Conference

A record-breaking attendance greeted the 17 speakers at three full and open sessions of the Third National Sales Conference. Prominent marketing men in the utility and manufacturing fields spoke authoritatively on subjects of outstanding concern to all branches of the industry.

The Chairman of Edison Electric Institute Sales Committee—H. P. J. Steinmetz of the Public Service Electric and Gas Company of Newark, N. J.—presided at all sessions, and contributed some interesting facts from his wealth of experience in his introduction of speakers. In opening the conference Mr. Steinmetz spoke as follows:

"When we met here last year on the occasion of the Second Annual National Sales Conference of the Edison Electric Institute, our industry was beset by certain difficulties which, as was then pointed out, seriously threatened its expansion in the service of the public, if not its very existence.

"As we meet today at the first session of the Third Annual National Sales Conference and review, for a moment, the events since our last meeting, we find ourselves still confronted by the same difficulties, perhaps in a somewhat different form, but still the same unfriendly influences. As we venture further into our review, however, we find encouraging stimulation in the knowledge that, in the past trying year, through the gradual lifting of the economic disturbance but largely through the enthusiastic and untiring efforts of the commercial organizations of the respective units of our industry, we have not only been able to ignore the effect of the depressing influences on our commercial destiny but have exceeded our best previous achievements both in sales and in service to our customers.

"So, on the occasion of this Conference, we will have an opportunity to learn, both from presentations to be made at the sessions of the Conference and from the individual personal contacts that are always so valuable a part of these gatherings, the 'whys and wherefores' of the achievements of individual companies and to hear of plans that will enable us to carry on to still greater success.

"In arranging the program, thought was given to the broad interest of the utility commercial man. Subjects of importance bearing on the approach to our residential, commercial, and industrial markets, both from the utility's as well as the manufacturer's viewpoint, have their place on the program. Cooperation between branches of the industry and the developments on the national political stage, as they relate to the commercial man's interest, have equally prominent places. And, of course, in view of the national character of our organization, every effort was made in selecting speakers to obtain as wide a representation as is possible to reflect opinions and experiences of companies in different parts of the country."

Formal Luncheon

A highlight of the National Sales Conference was the formal luncheon following the first morning session at which the speakers were Bernard F. Weadock, Vice-President and Managing Director of the Edison Electric Institute, and W. W. Freeman, Vice-President of the Columbia Gas and Electric Company. The toastmaster was E. W. Lloyd, Vice-President of the Commonwealth Edison Company, Chicago.

Two hundred and seventy-four persons attended this luncheon and enjoyed the speeches which were brim full with valuable information. Mr. Weadock presented an analytical picture of certain legal and political phases of our central station industry. He challenged unfair criticism, and defended the integrity of our industry so dramatically that he was frequently applauded by his sympathetic listeners.

Mr. Freeman unfolded highly interesting and informative observations on the Government's Rural Electrification Program and pointed out some fallacies and handicaps, and the effects on our industry. Mr. Freeman has a rich store of knowledge on this subject through his close contact with Government programs at Washington.

Other Meetings

Several other meetings were held during this Conference Week which should be recorded here. On Monday, March 23, the newly formed Electrical Industry Promotion Committee under Earl N. Peak, Chairman, had its second meeting and advanced further in its organization procedure and plans of operation.

National Kitchen Modernizing Bureau

On Tuesday, March 24, George E. Whitwell, Chairman of the National Kitchen Modernizing Bureau held the first meeting of the entire Bureau. Reports of amazing progress were presented, and one had only to listen to these presentations to be convinced of the wide-spread interest in this latest cooperative program of Edison Electric Institute and the electrical manufacturers' group.

E. W. Ashmead, Chattanooga; A. A. Brown, Oklahoma City; Guy W. Thomas, Denver (representing G. B. Buck); C. A. Collier, Atlanta; W. L. Berry, St. Louis (representing R. C. Geppert); Lewis A. Lewis, Spokane (representing his own district and also A. C. McMicken's, Portland, Ore.); G. J. Reichert, Buffalo; H. P. Megargee, New York City (representing H. M. Sawyer), and H. P. J. Steinmetz, Newark, all Regional Directors, were present to report for their respective districts representing 32 states. All reported motivation of the Kitchen Modernizing Program in their territory. Other Regional Directors reported by letters through Chairman Whitwell.

The records indicate that already 30-odd local Kitchen Modernizing Bureaus have been established or are in process of organization. The National Bureau officially started Nov. 1, 1935, and the Plan Books were distributed but a few weeks ago. It is not surprising that those responsible for this program are greatly encouraged with the possibilities that lie ahead for its service to the industry.

Other speakers at the meeting of the Kitchen Modernizing Bureau were Herbert P. Sheets, Managing Director, National Retail Hardware Association; R. R. Rau, Managing Director, National Retail Furniture Association; C. E. Swartzbaugh, Chairman, Business Development Committee of NEMA, and Dr. G. W. Allison, Field Representative for the Bureau, who gave an inspiring résumé of observations made during his recent trip for the Bureau throughout the West and Northwest districts.

W. A. Grove, Chairman of the Plan Committee for the Bureau, gave a résumé of plans developed, called attention to the line of available promotional material and offered thoughts on the program of the Bureau for the balance of the year.

Chairman Whitwell in closing the meeting remarked on the unusual progress that had been made in a comparatively short period of time as a result of the helpful assistance of those in the field who were encouraging speedy organization and stimulating local tie-in.

R. E. Barnes, Manager of the Bureau, acting with our advertising counsellor, had arranged an extensive exhibit of the promotional material issued to date by the Bureau, by manufacturers, trade magazines and others, all carrying the message of Kitchen Mod-

(*Continued on page* 143)

The Sales Challenge of Today

By E. W. Lloyd

Vice-President, Commonwealth Edison Company, Chicago

An address before the Third Annual Sales Conference, Edison Electric Institute, Edgewater Beach Hotel, Chicago, March 25 and 26, 1936.

IT is pleasing to see this large group of men interested in commercial development, and representing so many states, convening in Chicago. We bid you welcome.

The last two or three years have more definitely emphasized the importance of the sales department in every electric utility organization. The job of selling is in your hands and your success depends entirely on your ability and knowledge. Both the field and the problems are greater than ever before.

First, your sales manager must have a very complete grasp of the methods that have proven successful—ideas, campaigns and then the man power to do the job. Electrical equipment of some kind must be purchased before electricity can be used, and it is up to you to see that the customer buys that equipment and appliances either from you or someone else.

Electrical World statistics shows 25 per cent increase in 1935 over 1934 in appliance sales.

While we cannot neglect any branch of service, obviously one of the greatest immediate fields for exploitation is still the householder. With the domestic average use now running 600 or 700 kilowatthours per annum, some companies think they have done very well, but when you consider the possibilities ahead, the present record is not at all impressive. Did you ever take the trouble to put down opposite the various devices that are now operated satisfactorily, the average kilowatthour consumption, add the column and find that those having these devices would use 7500 kilowatthours per annum? In order to clarify this statement, we say that—

Ranges	use 1500 kwhrs
Water heaters	3600
Refrigerators	480
Washers	24
Ironers	120
Room coolers	1050
Small appliances	360
Radio	72
Portable lamps	144
Lighting fixtures	180

We could easily add more kilowatthours as applied to room cooling and ventilation, not to mention other appliances I referred to, but the above is a sufficient demonstration of the job we have before us.

MR. LLOYD

The next most important job to increase income is to sell more wiring in the home. In every community the lack of outlets is an outstanding indictment of the utility industry. Part of the blame lies on those who have retarded the use of lower cost wiring systems. Had the utilities used greater energy in overcoming these handicaps, several millions of dollars in revenue would have been gained. I estimate the value of a convenience outlet at 75c. per annum. Assuming that you add 5 in every wired home in the U. S., you have the tidy sum of $75,000,000.

The balance of the fault for lack of wiring lies right in your lap. Most of us spend too little money in sales and advertising effort. We get the wiring outlets, like other business, only by vigorous campaigning. We are spending about $2.50 per residential customer per annum.

Now in the commercial field there is much to be done, such as—

Increased lighting based on Better Light-Better Sight.

The sale of heating and motor driven devices.

Air conditioning and room cooling.

Electric signs.

Commercial refrigeration.

Small and large cooking operations.

Water heating.

Ventilation.

Office Buildings—Raise the standard of illumination in these buildings throughout. They need it.

Introduce air conditioning, beginning by the installation of air cooling equipment in a small way. Bring the wiring in these buildings up-to-date.

Theaters and Restaurants — These places can easily understand the value of high lighting standards. Air conditioning is becoming absolutely essential in connection with their operation. Better ventilating systems are needed. The market is large for electric cooking and heating devices.

Let us look into the needs of our own organizations. Sales departments in larger cities should be divided into important subdivisions covering every phase of the business. This is the age of specialization.

Company's Stores — Our company's stores should be adequately equipped. They should be kept up-to-date in every way and be a credit to the company and the merchandising community.

The company should introduce sales programs on every worthwhile application of electricity and follow the national advertising plans that are presented by our association. I suggest we take part in a reasonable number of trade shows, collaborating with other industries.

Industrial Service—We can introduce better lighting for the purpose of increasing production and making a better product. An extensive market awaits exploitation in air conditioning; ventilation; a multitude of electric heating applications, and melting and baking.

Examine into the conditions in large industries to determine whether interchange of energy is possible.

Let me inject here that it is advisable to make a thorough study of the latest

HOW THE UNITED STATES COMPARES IN ELECTRIC APPLIANCES IN HOMES WITH FRANCE, GERMANY AND JAPAN

Electric service in France by the beginning of 1934 had been brought within the reach of 97 per cent of the population, according to recent releases of the Rural Electrification Administration. The reported percentages for Japan and Germany were likewise very high. In the United States only 70 per cent of the homes are reached with electric service. Of course, in states of comparably dense population, 98 per cent of the homes have electric service, but the United States is a country of wide expanse and areas of sparse population, which accounts for the overall average of 70 per cent.

There is a vast difference between having electric service within reach of a home and actually making use of it. Available statistics for foreign countries do not show farm customers data. They do not even show domestic consumer statistics separate from other classes of service. They do show, however, some information on the number of radios, electric ranges, refrigerators and water heaters in use and this gives some index of the relative use made of electricity in homes in these various countries. The following table is compiled from sources of official statistics as indicated. It shows, on a basis of the total number of homes in the country, the percentage saturation of certain electrical appliances.

COMPARISON OF ELECTRIC APPLIANCES IN HOMES IN FRANCE, GERMANY, JAPAN, UNITED STATES, 1933-34

		Radios		Refrigerators		Ranges		Water Heaters	
Country	*No. of Homes*	*No.*	*Per cent*	*No.*	*Per cent*	*No.*	*Per cent*	*No.*	*Per cent*
France	12,804,887[1]	1,730,248[1]	13.51	23,800[5]	.19	21,234[5]	.17	36,903[8]	.29
Germany	17,729,485[2]	6,439,232[4]	36.31	.....	..	92,932[7]	.52	60,364[7]	.34
Japan	12,705,896[3]	1,859,987[4]	14.64	.....	..	.....	..	.....	..
United States	31,000,000	25,551,569[4]	82.42	5,800,000[6]	18.71	1,050,000[6]	3.38	300,000[6]	.97

Notes: [1]Statisque Generale de la France—Statistique des Familles en 1926, pg. 13.
[2]Statistiches Jahrbuch fur das Deutsche Reich 1935, pg. 34.
[3]The Japan Year Book 1935, pg. 61.
[4]Bureau of Foreign & Domestic Commerce—Electrical Foreign Trade Notes—Annual Statistical Number, April 5, 1935, pg. 21-23.
[5]Elektrotechnische Zeitschrift—Jan. 2, 1936, pg. 26.
[6]Edison Electric Institute—Statistical Bulletin No. 2, pg. 14.
[7]Statisticher Bericht fur die Elektroindustrie International—1935, pg. 170.

In the case of Japan, no statistics are available except as to radios and lamps. The reports indicate, however, that other types of appliances in use are rare. The use of lamps is meager, compared with our experience. In 1933, for both commercial and domestic customers, the average number of lamps installed per customer was 3.4. The average for the flat lighting rate customers was only 2.0 lamps per customer. In Tokyo in 1935 about two-thirds of all customers were on the flat lighting contract.

Although no figures are available on refrigerators for Germany, in Berlin the saturation of refrigerators is 0.09%, of ranges 0.86% and of water heaters 0.52%.

developed Diesel engine competition, and combination of Diesel engines using natural gas. Also look into the new reciprocating steam engine development which has taken place where much higher efficiencies are obtained of 13,000 Btu per kilowatthour with 5000 kilowatt units.

Rates—I have spoken to you many times about rates, particularly well-balanced rate systems. I care not what the form may be, giving due consideration to local conditions. Have your industrial rates so balanced as to increase and hold business. Have your commercial rates designed so they will encourage use and your domestic rates simplified and designed so as to encourage use.

We all know that we can only reduce residential rates by inducing consumers to increase their use of our kilowatthours. Kilowatthours are what we have for sale in large quantities, but our difficulty is to sell enough of them through one meter to enable us to meet the avalanche of unfair criticism that has been our lot for the past two or three years.

Now that we are going heavily into the domestic cooking field, and all other heavy-duty home appliances, the development of home service departments using well-trained women seems imperative. A well-organized branch of such women can be of untold good-will value as well as help materially to keep such appliances sold. These and other customer contacts are essential to our progress in every branch of our business.

The development of adequate advertising to sell appliances and electricity service, is most important, particularly in carrying on some of the new nation-wide selling movements you will hear about at this meeting.

We, in Chicago, spend as much for advertising as for the cost of the sales division. Appliance sales are assuming a much larger place in our picture and the employment of competent merchandise men is the only way you can complete keen selling ideas.

We are meeting with greatly increased competition in many communities—gas refrigerators and engines—Diesel and oil engines—very efficient steam engines—gas instead of electric heat for industrial and commercial processes of all kinds—the new German coal-burning Brackelsberg Furnace for melting, and oil water heaters.

In closing, I would emphasize that many of the claims that have been made in recent months as having been accomplished by some new Government agencies have been practiced by many utility companies a long time before any Government agency thought of it. Nevertheless we must recognize one helpful result coming out of the criticism. It has aroused the average intelligent American to the fact that electricity is a very important essential in his everyday life.

Let us capitalize on this situation, and put every ounce of energy we have into the big job of selling before us. The opportunity is here, we have the ability, let us forget criticisms for the goal ahead.

Market Development

By William H. Hodge

Vice President, Byllesby Engineering and Management Corporation, Chicago, Ill.

Address presented before National Power Sales Conference, Chicago, March 23-24

BECAUSE it has been built up under competitive pressure, the industrial power section of our business is in the healthiest condition of any of our main activities today. The commercial, residential and rural components are just coming under the competitive trip hammer which has fashioned *your* destiny all along. The whole business is now fighting for existence against almost every conceivable form of competition from the United States government to garage mechanics. As industrial power specialists, you understand this as well as I do. When it is as thoroughly understood around boards of directors' tables, serious worry about the future of the industry will be wasted.

Business is gained and held under competition by four things—quantity, quality, price and salesmanship. And salesmanship means acquiring and sustaining good will fully as much as making engineering studies and signing contracts. For two decades we easily excelled competitors in the first three essentials and did a pretty fair job on the fourth. But it is only since the last depression hit us that the fourth element began to assume front place necessity. Today salesmanship must be admitted to full partnership with the engineer, the operator, the accountant and the financier, if this industry is to win as a commercial undertaking in the competitive battle.

The advantages which we formerly enjoyed in the industrial field, due to engineering development, mass production and economical transmission, have been much reduced by the technological advances of competing forms of power. At the same time, the electric power industry has not stood still; it has achieved and is prepared to achieve still further economies and efficiencies of its own. What it needs most of all is a new self psychology; a new conception of its place in the scheme of things we call civilization, and a realization that it will have to survive on its economic merits, or not at all.

This business has the disadvantage of laboring under public regulation, to

MR. HODGE

which the majority of its competitors are not subject. Price must be nondiscriminatory and based on cost. One class of service rendered may not bear the burden of another class. But fair regulation must keep the competitive angle in mind, if it is not to jeopardize upwards of 30 per cent of the gross revenues of the power companies, and it is this very industrial power revenue that makes possible the present low level of residential, rural and commercial lighting rates.

Equally important is the fact that the industrial power load can't stand still, but must grow, to enable it to play its proper part in utilization of plant investment, so that the rates for the homes, farms, stores and highways may be further reduced without bankruptcy or subsidy. This distribution or balance of load and the corresponding rate levels among the various classes of business are vitally essential in rendering the greatest good to the largest number at the lowest cost.

Other kinds of industry may expect to receive—some are receiving—governmental encouragement and aid and protection, but the tables are reversed when it comes to the electric power industry. To the contrary, it is proposed to place every imaginable obstacle in our path. We must remember that we are not a primary industry. Other industries, except those providing us with machinery and materials, do not exist for *our* benefit. We exist for *their* benefit. Our job is to supply the requirements of other industries satisfactorily, and only if we are smart enough and energetic enough to do so. We have to design and fit our business to *their* business—and that is just the program ahead of us if we are to stay on the map. And the same thing broadly is true of all the services we render to the public as a whole.

Fear is a poor master; reasoned confidence is a much better one. We have the brains, the loyalty and the energy to conquer competition if we are willing to recognize the new conditions and shape our course the right way. Throughout the depression we have more than held our ground. In the business renaissance before us, there is no room for doubt; plenty of room for courage, ability and resourcefulness; ample opportunity for growth.

Not long ago I visited a company where industrial power competition had been unusually severe. The management was worried. Some business has been lost to other forms of power; and some gained. A minute survey had been made of the entire field; every isolated plant catalogued and defined and potential revenues estimated. After much analysis and discussion some one asked: "So much for the business you *haven't* got; how much *have* you got on the lines?" It developed that 94 per cent of all the available industrial power business in the territory was supplied by the company—only 94 per cent. So, in spite of the tears shed over the lost business, it seemed that the situation was not so desperate after all.

To my mind it is a good thing for us that competitive power sources have been improved in design and performance; in first cost and operating expense. It is well for power users to have a free choice among several forms of power,

all fairly reliable and all fairly economical. It is bad if any customer feels that he has to buy whatever we may have to sell him. The nearer any industry comes to being a monopoly the easier it is to penalize or socialize it. There are plenty of users for competitive forms of power in this country, some of them much better in their particular applications than central station power. All we really want is an opportunity to sell our product in a field free of prejudice, misrepresentation, bribery or favoritism. We can't reasonably expect to get all the business and we do not deserve to get any of it, except on economic grounds.

In a nation infested with derby-hatted salesmen with fat wallets, seeking to promote the construction of competing power plants with taxpayers' money and the whole-souled support of the New Deal bureaucracy — inspired by huge government short-weight water powers—with an eloquent White House propagandist and a horde of Congressional press agents making the front pages and haranguing at our firesides—who, indeed, are we to prayerfully consider the subject of "market development?"

Well, so far as you men are concerned, you are a group who have fought long, valiantly and successfully against great odds, and whose work has not been adequately recognized by many of our higher executives. As an industry, we have been slightly loco on the subject of residential development during the past few years. There is a tendency now, of which this meeting is evidence, to give somewhat belated attention to this indispensable industrial power business and the maintenance of its necessary proportion of gross revenue. The industry can hardly be blamed for losing its equilibrium under the stresses to which it has been subjected, but let us hope that in the future, no particular phase of our many-phase activities will be exclusively or unduly emphasized.

In the days before government oppression of business and the enforcement of secret police methods by the New Deal, technical and business information could be freely exchanged in this country. Probably no industry in the past has done this to the greater advantage of the public than our own. Now facing competition of the most unusual and bitter nature; with our most formidable competitor controlling legislation, taxation and means of communication; with espionage of the mails, the telephone and the telegraph—of business and personal correspondence files—this is no longer safe.

Therefore, if we are to benefit from discussing our individual experiences in the sale and utilization of power; if we are to exchange engineering and other data gained from individual studies; if we are to transmit to one another knowledge of the tricks, schemes, misrepresentations and subterfuges of our bureaucratic and business adversaries, there is no mutually confidential manner of doing it except by personal assembly. At least, we think that is reasonably safe up to the present. We hope that everyone present fully realizes the gravity of the situation, and that with respect to this meeting and with respect to his own and his company's affairs, will be governed accordingly.

As citizens engaged in lawful and useful work, we still have the right to consider "market development." At least, we think we have. In doing this, however, let us be spared the incitement of business and financial visionaries as well as political visionaries. One is as much to be distrusted as the other. It suits the present purposes of the New Deal to deluge the country with dream dramas in which the power industry is cast as the villain, and the mountaineer, the factory worker and the farmer, as the downtrodden heroes and heroines, saved by a super-myth; a sort of Santa Claus dressed up as Uncle Sam.

My friend, Joe Kyle, says that he has been reading so much New Deal propaganda that he sees no reason why we should look further than the rural field for market development. Just think how easy it will be to sell untold quantities of power to the farmer now that government propaganda has prepared him for the salesman. He has heard so much about how the power of the sun, stars, moon and the tides of the sea is to be brought to his barnyard, that he is practically prepared for anything. In his mind's eye he is sitting on his porch listening to the radio while the cows are being milked with electricity, the feed for the cattle ground and fed with automatic machines and water being pumped to the barns and house and heated for his shower bath. Or, in the morning, after his wife has put the family wash in the machine and the dinner in the automatic electric range, she may join him and play cards as he sits and waits for the postman to deliver his government check for not raising anything except hell! "And," says Joe, "that's the moment I want to be there and take his dream order for a chunk of dream power."

Seriously, however, if industry and farmers would prove practical the Henry Ford idea of farm production of materials for industry—the fabrication of things grown instead of imported or obtained by undue depletion of natural resources—there would be a wonderful opportunity for the power salesman in the countryside. This particular farm problem may be really at the door of the sales engineer with his knowledge of industry and the methods of industrial production plus the economic application of electric energy. When the farm is made to produce for industry as well as stomachs, we may have a solution of the agricultural problem worthy of the name.

Still, glancing at market development, what character of business do we want? Certain central station companies are now specifically being asked to make proposals on blocks of industrial power from 25,000 kw upwards. But most companies will approach such large commitments with caution. The industry cannot disregard the lessons of the last depression which closed down large industries like a row of dominoes, and millions invested in power plant capacity took a vacation. Industry and commerce in general are so interdependent today that the largest units fold up together, while many of the smaller units continue to operate. So the broader the base of a company's industrial load the more stable it is in bad times.

Is it not in the medium-size and small power fields where most of our alertness should be exercised at present? While we may be planning about electrifying railroads, manufacturing synthetic rubber or new kinds of chemicals or fertilizer, small industry goes steadily on. There are countless potential applications of both power and heating units. The electrical manufacturers are doing their part in developing new methods and equipment, but must look to the power salesmen for diligent search of the market and effective promotion.

It is not to be doubted that science has literally scores of important new methods and processes, requiring power, ready to be launched when the confidence of industrial leaders in their

(*Continued on page* 113)

"Keep 'Em Sold by Constant Selling"

By H. C. Thuerk
Utility Management Corporation, New York

Abstract of a paper presented before the National Power Sales Conference, Chicago, March 23-24

HOW CAN WE PREVENT the replacement of our purchased power by competitive sources of power? I have been asked to lay before you today, as briefly as possible, some observations and thoughts on this specific problem which may form the basis of further and more detailed discussion at this conference.

The days of "order taking" in the industrial power field are gone—in fact, they haven't been with us for some time, as many of us have realized from our experiences in the past few years. We have also discovered that the sales methods and programs of the "order taking" days fall far short of meeting the needs of today.

To lay out an effective sales program to merchandise any product or service requires a thorough knowledge of the market and complete understanding of the existing competition. I am assuming that we know our market. My discussion then will be directed to the task of determining just what is the competition for our industrial business and what methods may be used to effectively meet it.

The factors and influences which make up this competition may be divided into two groups, one of which has its origin within the customer's own premises, and the other outside of the premises. Time will not permit a detailed discussion of all of these influences. They are outlined to you, however, with the suggestion that in each sales negotiation involving competitive power, it would be well to determine which ones of these factors are wielding the greatest influence on the customer. Your efforts then should be directed principally to overcome these predominating influences.

If we will examine the "inside" competition we shall find that the management of a commercial enterprise may be influenced to consider replacing all or part of its purchased power service for any one or a combination of the following reasons:

1. A desire to reduce costs to meet competition in its own industry. This desire is more pronounced in periods of declining demand and falling prices than in years when demand is increasing and prices are rising.

2. A desire to increase profits. Competition within an industry may not be serious but intelligent and active managements always want to increase profits.

3. Changes in processes affecting quantities and costs of power and heat utilization.

4. A desire to be independent of utility service. This desire may arise from unsatisfactory dealings with utility representatives and the feeling that the customer was not given fair treatment. Pride of ownership may be responsible. Emotions are stronger than reason and guide decisions in business as well as in other spheres of human experience. The danger from this source is seldom appreciated and often too real to be overlooked.

5. Fear of inflation. Executives feel that to hedge against inflation it might be desirable to convert dollars into goods or plant equipment.

6. Large corporate surpluses are available. Many concerns have conserved their resources in the past two years because of lack of confidence in the business outlook. Many companies have the cash necessary to invest in power plants and other process equipment.

MR. THUERK

You can, perhaps, add to this list of "inside" influences. It is by no means complete. These will be sufficient, however, to indicate that the "inside" competition is real and active and must be recognized.

The "outside" competition appears to be more tangible and consists of those interests and conditions which also influence the management of commercial enterprises to consider substitutes for purchased power.

Equipment manufacturers through the past few years of lessened business activity, have carried on aggressive and intelligent sales programs. With the encouraging signs of continued improvement in the business indices, many have begun to augment their sales staffs and intensify their drive for a share of the industrial power business we now enjoy. Advertising plays an important part in the sales promotion plan of the modern industry. Power plant equipment manufacturers know this and have been carrying their messages of cheap power to our customers in national trade magazines, executive-type publications and by use of direct-by-mail publicity. All of you are familiar, I'm sure, with the advertisements appearing in these magazines.

These alluring messages prepare the way for and assist the salesmen of these concerns whose market consists principally of our present industrial revenue. These salesmen are usually well-trained in sales technique. They are for the most part specialists in their line, and are equipped with effective and sales-impelling tools.

We must give serious consideration to the adequacy of our present sales methods—to determine, if possible, the answer to the question, "What can we do to meet this competition?"

It has been my observation that many companies begin their campaign of acquainting a customer with the value of purchased power only after the particular customer has succumbed to the influence of our competition and definitely begins to investigate the merits of a power plant of his own.

For over ten years I have been driving the same make of automobile. Does this particular automobile manufacturer use the same sales philosophy as some of our electric companies and begin to "sell" me on one of his new cars only when he discovers that I am just about

to buy another make? Of course, not! On the contrary, the poor, ignorant fellow sends me his magazine once a month and direct-by-mail pieces in between from his local dealer. And the funny part of the whole thing is that it becomes increasingly difficult to get me to even think about another make of car.

Now, I want to ask you if you think this same kind of silly reasoning applies to holding industrial power business. Or, is our business just so different from all others that none of these successful selling methods are applicable? Hasn't the time come to throw overboard this short-sighted policy of "Watchful Waiting" and adopt the slogan "Keep 'Em Sold by Constant Selling!"

Defensive type selling has and always will require the expenditure of unnecessary effort and expense to accomplish its objective. Psychologically, it is basically wrong, because of the mental attitude created in the minds of salesmen using it. Enthusiasm is necessary to attain marked results, but enthusiasm is difficult to maintain when the other fellow has the ball all of the time.

Some of the most successful basketball teams in the country today have built their play around the quick break —long pass method—a distinctly offensive style of play. In like manner, I believe that the industrial sales departments which are going to do the best all-round jobs are those which will carry the fight to the competition through constantly selling their customers on the value of purchased power by the device of tying this objective definitely into aggressive sales programs to sell more energy to these same industrial customers.

To carry out this kind of a "Keep 'Em Sold!" policy under present economic conditions requires a much more comprehensive and carefully planned program than we have ever deemed necessary in the past. Such a program surely should provide for:

1. Adequate customer contact.
2. Salesmen's quotas and incentives.
3. Customer service.
4. Publicity.
5. Sales training and sales tools.
6. Sales supervision and direction.

It seems hardly necessary to refer to the absolute need of having a well-trained and adequate sales force which will insure each industrial customer receiving direct attention proportionate to the size of his monthly power bill and his vulnerability as an isolated plant prospect. Neither is it necessary to but call attention to the need for continual sales training and guidance of our salesmen. Quotas and incentives in the form of prizes or bonuses contribute fully as much to the success of an industrial sales program as they do in our domestic and commercial load-building campaigns.

As insurance against misleading statements of savings to be derived from isolated power plant operation we should see that customers purchasing all of their power are obtaining the lowest possible over-all costs for power and heating services. Furthermore, it is necessary that power salesmen be acquainted intimately enough with their customers' processes that when changes take place in these processes affecting power consumption and heat utilization, steps are taken promptly to assure the customer lowest overall costs under the new conditions. This type of customer service will pay large dividends in retained business.

A "Keep 'Em Sold!" program includes the intelligent use of advertising. There has always been much discussion as to the need for or the value of magazine advertising or direct-by-mail messages designed to sell our industrial customers on the value of our service. This is the eternal question of the concern using advertising to supplement the efforts of salesmen. Experience data of this kind on industrial power sales is practically non-existent.

The story of the advantages of purchased power can be woven into the promotion of the use of electric service, so that a dual result is accomplished. Our company is planning to carry out this idea in three ads which have been prepared for the initial issue of *Timely Ideas,* a new publication with which, I think, most of you are familiar. Two of these ads promote industrial lighting and electric heat and the other the value of purchased power.

The advertising program sponsored by the American Gas Association is another evidence of the recognition of the value of trade magazine advertising in the sale of utility service.

Now advertising alone will not completely solve our problem of competition. It will aid, but we still need good salesmen, well trained and equipped with effective sales tools. An analysis of sales methods used by industrial salesmen indicates that the procedure commonly used is based on "telling" the customer why he should not put in a power plant. Sometimes his verbal argument is supplemented with references to a power cost report, in itself usually a cold inanimate sort of sales tool.

Now when we consider that 87 per cent of all of our impressions come through the eyes and only 7 per cent through the ears, I believe we can well question the relative effectiveness of a sales approach which is based almost entirely on verbal discussion.

It may have been these fundamental characteristics of the human being that resulted in the old Greek proverb which reads "The eyes believe themselves; the ears must believe other people."

Do our competitors know the relative value of "eye" and "ear" appeals? Take the Diesel engine salesman, for instance. He makes prolific and usually effective use of his company's catalogue and sales bulletins—why, because they "picture" cheap power to his prospect. Look inside one of these "picture" books and prove this to yourself.

And so I say to you—Let's not depend on "telling" our customers about the advantages and value of purchased power—let's "show" 'em with pictures. Just as the power plant equipment salesman *shows* the prospect pictures of his equipment, of actual installations and letters from users, in like manner let us *picture* in dramatic style, through photographs and charts, the superior advantages of purchased power. The *Power Pictorial* of the Consolidated Gas, Electric Light and Power Company of Baltimore is an excellent example of this psychology in selling.

Efficient utilization of the time of our industrial salesmen will contribute much to the success of this type of aggressive sales program. The industrial sales manager can promote this efficiency by keeping informed of the trends in various industries and advising his salesmen as to where danger spots are likely to develop. It is possible, by combining the outlook rating of an industry with an analysis of the present financial condition of a industrial customer in the same industry, to obtain a pretty good estimate of the equipment policy of the concern. Concerns in an industry having a favorable outlook which are in good financial condition will usually have liberal equipment policies and therefore are more

(*Continued on page* 156)

The Contractor and the Utility

By Earl N. Peak

President, National Electrical Contractors Association

An address before the Third Annual Sales Conference, Edison Electric Institute, Edgewater Beach Hotel, Chicago, March 25 and 26, 1936.

I HAVE been asked to speak on the Contractor and the Utility. Webster says "a contractor is something that shortens or draws together," and that "a utility is something serviceable." Therefore, my subject, analyzed in this manner, might be called "Something that shortens or draws together something serviceable."

The subject, as assigned, puts the responsibility of drawing together upon the organization which I represent, and I am pleased to be a representative of such an organization and to accept that responsibility, under certain conditions.

There is an old saying, that "we should practice what we preach." So, if we, as contractors, are to be the means of "drawing together," we should certainly start with our own group. I believe a start has been made. The National Electrical Contractors Association has established as qualifications of a qualified electrical contractor a "Pledge of Cooperation," which advertises to the world our stand regarding not only utilities, but the other branches of the industry as well. I wish to present this pledge to this meeting:

Pledge of Cooperation
National Electrical Contractors Association

As a qualification for membership in the National Electrical Contractors Association, we pledge active support and cooperation in the following ways for the betterment of the electrical industry and the public welfare:

1. We adopt as the standard of our business as electrical contractors the following wiring policy established by the National Electrical Contractors Association:

The National Electrical Contractors Association declares its policy to be the extension of electrical service to the greatest number of users, and to this end the Association believes that every effort should be made to reduce the cost of electrical installations through developments in wiring methods and installation practices consistent with the safety and convenience of the public which must be safeguarded at all times.

2. We will conduct our business along proper and ethical lines, keep an accurate record of all transactions and sell on a basis that will permit prompt payment of labor, materials and business expenses and meet our responsibilities to the customer and to the community.

3. We will at all times avoid the use of sub-standard materials, methods and workmanship, or any installation that falls short of adequate safety and service to the users of electrical energy according to legal requirements and duly approved standards.

MR. PEAK

4. We will actively promote to the best of our ability such standards as "Better Light, Better Sight" and all similar promotions designed by the electrical industry to render more adequate and satisfactory service to all users of electricity.

5. We will familiarize ourselves with the electric rates prevailing in our community, in order to discuss intelligently with customers the cost of operating electrical appliances, motors, heating and cooking, as well as proper lighting.

6. We will actively promote the sale and use of current consuming devices, realizing that such promotion offers greater service to the customer, increased business opportunities for wiring, as well as in the sale of such appliances. If not stocking and selling such appliances, we will refer prospects for same to a regularly authorized and established dealer, preferably an active member of the Association.

7. We will not contribute anything, by word, action or otherwise, that will tend to destroy confidence in the electrical industry as a whole; nor will we permit unjustified attacks upon any branch of the electrical industry to go unchallenged without an honest effort to get at the source of complaint or criticism, and will endeavor, with the help of the Association, to adjust or remove the cause and effect of same, by proper methods of education or arbitration.

8. We subscribe to this pledge for the purpose of enhancing the usefulness of electricity to the public and for the rendering of more adequate and satisfactory service to all users of electricity.

9. It is understood and agreed that if we desire to withdraw from this pledge of cooperation, we may do so upon giving notice, in writing, of our intention to the National Electrical Contractors Association, whereupon our membership shall cease.

10. We agree, that if any complaint of violation of this pledge shall be entered against us by a co-signer of the pledge, we will meet with the Executive Committee of the Association, or any representative of the Association appointed by the Executive Committee to investigate such complaint, and that if, after final review by the Executive Committee itself, such complaint is found to be true and inimical to the best interests of the public, the Association and the electrical industry, we will forfeit our membership in the Association, and all benefits attached thereto, if required by the Executive Committee as provided for in the Constitution and By-Laws.

In addition to this pledge, we feel that the electrical contractor has definite responsibilities to justify his position in the industry. We have set forth the functions of the electrical contractor, as the basis upon which the part of the contractor may be measured in its relation to the rest of the industry, as we see it. We define the functions of the electrical contractor as follows:

1. Creating demands for electrical products by salesmanship, contact with consumers and market development;

2. Building good will for and exploiting the products of particular manufacturers by recommending and using such products when installation contracts do not call for parts by trade names;

3. Making no substitutions for specified products where the manufacturer has created a specific demand;

4. Supplying engineering experience in the proper assembling of the diverse products of different manufacturers and combining them into a balanced installation;

5. Guaranteeing the successful operation of the entire installation, including the parts contributed by each manufacturer; and

6. Supervising and servicing the successful operation of the equipment after it is installed, thereby assuring continuing good will for products.

The electrical contractor is entitled to an adequate differential over the consumer as compensation for these services. We are asking for such compensation only for electrical contractors who perform the services shown above.

With the approved "Pledge of Cooperation," and the establishing of requirements of qualified electrical contractors, the utilities of this country can be of great assistance to the electrical contractors who are living up to these

principles, by requesting that the contractors with whom they are in contact join and become a part of the Association which stands for such principles. We feel that here is a place where the utilities can render a real service, not only to themselves, but to the industry, by encouraging the contractors of their locality to join in this movement.

As evidence that the National Electrical Contractors Association has already accepted their responsibility and taken steps to draw together not only the contractors, but the entire industry, I call attention to the meeting held Dec. 12, 1935, in New York City. At this meeting the major executives of the Electrical Manufacturers, Electrical Wholesalers, Edison Electric Institute and Electrical Contractors, sat down together for the purpose of starting a constructive program of business building for the electrical industry, through united and coordinated efforts of all branches of the electrical industry.

The efforts of this national cammittee will be for naught, if every locality in these United States does not organize to capitalize on the information sent out by the committee. It is your duty, and mine, to see that a local industry organization is formed at once in each locality to take advantage of this committee's work.

Of the four main branches of the industry, I feel the ones who should be most closely allied are the utilities and contractors. In a few places they are working closely together and are getting splendid results. I am confident that if we were to get better acquainted and were to work together more closely, we would be well repaid for our efforts.

Recently I was asked to appear on a program to speak on the subject of Rural Electrification. When I had finished my talk one of the officials of the local utility said, "Would to God we had an Earl Peak in our state. The good you have done today is more than anyone else has done here in years." My reply was, "Have you ever looked around for any Earl Peaks? Have you ever had the electrical contractors along your properties come into your office to confer on subjects of mutual interest?" His reply was in the negative. There was this official wishing for something which his territory was full of. Men are as anxious to work with him as he was to have them. It was the old story. On account of their nearness to him, he could not see them. He could see one man several states away. In other words, this executive could not see the forest for the trees.

There are dozens of contractors on every utility property who are willing to cooperate and can do more for the utilities than they are able to do themselves. Many utility officials make the mistake of leaving this important contact in the hands of the new business manager, who is often so greedy for business which will enable him to make a showing, that he is apt to take advantage of the contractors in his locality, only to build up hatred and opposition where there should exist lifelong friendship.

I cite a particular case. A town of several thousand population called a special election for a municipal plant. I was asked to go to see what was the trouble. I was not long in finding out the reason. The local manager in charge had been so eager to make a showing he had overridden everything and everybody until many citizens, as well as the other branches of the electrical industry, were greatly opposed to his method of operation. It was too late to do anything to avoid a duplication of service; the damage was done. The municipal plant was voted in. The proper contact with the local contractor would have made possible a knowledge of the situation and trouble could probably have been avoided.

There are many other places where a contractor can do more good for a utility than it can itself. Just recently, a farmers' cooperative president came to see me, asking how he could get service for the lines of which he was president. He said there were 400 miles which he represented. After two hours, I convinced him the proper place was to get service from his local utility. Only last week, I was informed that the utility and the officials of this 400-mile project were having a conference with the purpose of putting through the project.

There are many other instances I could relate, but time will not permit.

In my opening remarks, I stated that as contractors, we were willing to accept the responsibility of "drawing together" the industry, under certain conditions. Some of these conditions are:

That the electrical contractors do not own the electrical industry, and should not be expected to save it. It should be a mutual obligation to see that the general public is given the truth regarding the electrical industry, in a manner they can understand. The utilities should be willing to assume their share of the expense in taking this to the public. Too much money has been spent in trying to get out of trouble. If even a small part of this cost had been expended in the field with the contractors, many of these cases of trouble could have been avoided.

I feel that the utilities have been inclined to be too competitive with the contractor in many cases, and during these unusual times this has caused uncalled-for public sentiment against the utilities. In other words, I feel many utilities have failed to recognize the electrical contractor's place in the industry. They have failed to realize how valuable an asset the contractor can be to the utilities, if they will cooperate with him.

How can this be done? See that the qualified electrical contractors along the utility properties are called in and counseled with. Do not compare the qualified contractor with unethical competitors, or ask him to meet unfair conditions or requirements.

What is a qualified electrical contractor? He stands for the principles set out in the Pledge of Cooperation I explained to you at the beginning of this talk, and he lives up to the functions outlined therein. If you have contractors in your territory who do not know what these requirements are, advise them to join the National Electrical Contractors Association, and they will receive information and assistance which will enable them to become the kind of contractors you will be glad to have in your territory as co-workers.

In an address given by the late Charles L. Edgar, before the Twenty-ninth Annual Convention of the National Electrical Contractors Association at Swampscott, Mass., in 1929, Mr. Edgar said:

"Who is the electrical contractor?" is a question that cannot be answered quite so readily. It is a question that has been the subject of discussion for many years and has never yet been answered definitely. The 'why' of this is because he has never been thoroughly understood by the other three major branches of our industry.

"When I say 'never understood,' I speak from experience. Although our company has always been in sympathy with the contractor, it was not until comparatively recent years that we realized just what the contractor meant in our business. We were possibly too busily engaged in our own affairs to even think

(*Continued on page* 118)

Standardized Light Prescribing Technique —Its Possibilities

By Earl L. Canfield
President, Sight Light Corporation

An address before the Third Annual Sales Conference, Edison Electric Institute, Edgewater Beach Hotel, Chicago, March 25 and 26, 1936.

ARRANGEMENTS have recently been concluded between Sight Light Corporation, General Electric Company and Westinghouse Lamp Company, which now make it possible to offer all types of light meters to the lighting industry and to the general public. This includes the Standard Model, 703, Sight Meter, with which you are familiar; the Sight Light Indicator, Model 719; the new General Electric Light Meter; and the new Westinghouse Light Meter.

The consummation of these arrangements now makes it possible to standardize the printed legend on the scale face of all instruments, thus eliminating any misunderstanding or confusion on the part of the Lighting Industry, as well as the public, in the use of them.

I am confident that you will agree that these arrangements will assist you in the further use of these effective sales tools, in the development of the lighting market in your properties, and should prompt immediate action on the part of the Lighting Industry for making these instruments more generally available in homes, schools, factories, stores and offices.

It is the belief of representatives of these three companies that this new step will make the light measuring instruments as universally used as the common temperature thermometer.

During the past year, the Sight Light Corporation has concentrated its efforts upon the introduction and development of the Light Prescribing Technique to the members of the Optical Industry and Profession. The experience and information developed during this period of actual contact have been recorded and will be made available to the Optical Profession and the Lighting Industry in the form of a Manual, which is now being presented to you.

By arrangements with the Westinghouse Lamp Company and the General Electric Company, these new Manuals will be used by their organizations in presenting the story of Light Prescribing Technique to their customers. These will also be made available at a nominal price to the utility companies for distribution to the members of the Optical Profession in the districts served. The story they tell I would briefly outline at this time, urging your careful review of the Manual itself at your earliest opportunity.

MR. CANFIELD

What Is Prescribed Light?

For the human machine to function efficiently, it must be supplied with food and fuel in sufficient quantities and of suitable quality to be converted into body tissue and energy. Much of medical science is focused upon prescribing food and conditions which are favorable to individual human welfare. The optical profession is devoted to those practices which preserve normal human seeing. For the most part, it has concerned itself with the correction of physical and pathological aberrations of the optic organ, always with thoughtful regard for the general physiological condition of the individual patient.

The eye cannot function at all without external light. It cannot serve efficiently with insufficient light. Only when the quantity of light energy is ample for complete and easy seeing can the eye do its work with ease and comfort. It is the purpose of light prescribing to determine for the individual patient that minimum quantity of light which must be available for each seeing task, if the eyes are to be used without overworking them.

Seeing conditions vary. Individual patients vary. Light varies. The eye is a very adaptable organ and attempts to do its work under all the varying conditions it encounters. By attempting to exceed its limits of adaptability, the eye makes demands upon physical and nervous vitality which frequently exhaust human reserves and cause cumulative physical debilities of far-reaching importance.

Because almost every voluntary human activity depends upon seeing, it is obvious that easy seeing is the foundation of easy accomplishment. Good sight is a recognized essential. To retain it, there is no substitute for frequent, regular eye examinations and the observance of prescriptions ordered by qualified optical practitioners.

Prescribed lighting should be and can be a great contribution to improved human welfare in this complex and artificial society which we call civilization. The end results are certain to be mutually beneficial to practitioner and patient.

Benefits of Prescribed Light

The human seeing machine developed as an animal under primitive conditions, in which daylight was the only light. The eyes we possess are adapted by Nature to use the abundant light which she lavishes upon us. Under broad daylight conditions we see most easily. Nature made us that way and we will never change.

But a large majority of civilized activities are performed indoors where natural light is either totally absent or re-

duced almost to the vanishing point. Day and night most of us use our eyes indoors for our most difficult seeing tasks. By so doing, we frequently ask our eyes to work, using such weak light energy that they cannot perform well. Virtually, they are starving for light, and we suffer consequently. Sometimes the eyes themselves are permanently impaired. Often our nervous and physical well-being is upset. Almost invariably we waste vital energy which could be more usefully employed than in merely trying to see.

Size of objects and contrast with their surroundings greatly affect their visibility. As we reduce contrast or size, we can do either of two things: (1) We can pay the price for seeing through increased physical and nervous energy, or (2) we can increase the brightness of objects and thereby see them with ease. If the public understood the importance of ample artificial light of proper quality, many of the conditions which cause eye-fatigue would be corrected and a definite improvement in human welfare would result. This understanding can best be made public by the optical profession. Through light prescribing the practitioner can effectively enlist the cooperation of the adult public in protecting its own eyesight and that of its children.

Contributions of Optical Industry

The optical industry is a great organization comprising all those whose technical equipment and activities complement the professional services of the practitioners in the optical profession. It seems a relatively simple procedure to have one's eyes examined and, when desirable, to have glasses fitted to correct the faults that may have developed.

The practitioner who makes the examination has long been trained in his profession to know the complicated structure of the eye itself and to interpret and measure its intricate functions. That personal skill is, of itself, a triumph of personal service. At his disposal are intricate and precise instruments to assist him in his diagnosis, and it requires long training and careful study to use them with skill and confidence.

Supplying the prescribed refraction for glasses is the task of vast optical organizations whose manufacturing and service facilities must be of the highest order. Precision, the careful consideration of individual requirements, widely distributed supplies, and uniformly accurate and prompt service are the everyday routine of this remarkable manufacturing business.

Behind even that is a long, long history of research, development, more research, and constant improvement. Today, tomorrow, yesterday, and every day far back into the past, clever, patient men and women have been studying, investigating, comparing, and developing. The present advanced state of optical science is due to this human contribution to human welfare. Into the unending future the research will continue. Always new facts will present themselves to be considered, correlated to old facts and fitted into the ever-growing pattern.

Service Rendered by Lighting Industry

Ever since the infant lighting industry was given life by the invention of the incandescent lamp bulb, its progress has been marked by the concurrent advance in civilized living. Great contributions have been made by this same lighting industry, all marked by the devotion of talented men and women to the cause of human welfare. Electric lighting was a dramatic invention but it served merely as the nucleus of a civilizing development almost unparalleled in material history. Within two generations, America was laced with distribution lines that delivered light, heat, power, safety, comfort, and ease to every metropolis and nearly every cross-road in this vast land.

Not content with the startling achievements of placing this clean, cheap public servant at the command of every small householder, every effort was exerted to improve and to lessen the cost of the service rendered. Equipment was improved in design, in performance, in efficiency, in durability. The cost of electric lighting went down, and down, and down. Through constant research, invention, improvement, and application, it has become not only the best form of artificial lighting and the cheapest form of artificial lighting, but almost the only form of artificial lighting.

The man-power of the lighting industry has always labored diligently for the betterment of its instruments. Results of their devotion are visible on every hand. Illumination has been made available, dependable, clean and cheap. The contributions of this progressive industry have profoundly affected the lives and happiness of the whole people and the end of these commercial benefits is not yet in sight.

Important among the lighting industry's contributions to human progress has been a profound and scientific study of the effects of lighting upon seeing, which will be reflected in permanent benefits to a half-seeing world.

Cooperation Between Two Great Industries

Members of the optical profession have properly earned the confidence which the public has in them. Heretofore, their services have consisted chiefly of the care of the eye. This professional service can be expanded to include a consideration of light. So amplified, all the factors which cooperate to produce seeing would be included in the practitioner's diagnosis and complete control of all the variable factors obtained. The advantages of exercising this control are obvious.

Assuming, therefore, that the practitioner desires to serve his patients as completely as possible, he will add to his established service of prescribing refraction by also prescribing proper minimum intensities of lighting. What is it necessary for him to do?

First: He will need some simple *equipment* consisting of an *illuminator* with convenient means for varying the intensity of the lighting on his test cards, and an *instrument* to measure the variable intensity. Secondly: He will need an established, authentic *technique* or routine to follow when making his tests and for preparing his light prescriptions. Thirdly: He will want some method of tactful, *follow-up* to assist his patients to obtain the prescribed light and to make sure that they are receiving proper benefits from the prescription.

As the optical practitioner cannot fill *light* prescriptions, it should be arranged that his patients can be served and their light requirements supplied by the lighting industry.

The optical practitioner who prescribes light has a trustworthy ally in the promotion of eye health when he refers his patient's lighting prescriptions to the local lighting company. At his suggestion, and with his patient's cooperation, an appointment can be made to have a lighting survey report rendered. The means provided are simple—a post-card appointment notice sent to the local lighting company, which will provide the printed forms.

The report of the survey will be sent to the practitioner, thus giving him a complete and accurate record of the conditions under which his patient is using his eyes.

This report diagnoses the actual conditions. It tells the practitioner exactly what he should know about the pa-

tient's seeing problems. It gives the patient a factual basis on which to provide proper illumination for his own seeing.

To place this vital contribution at the service of the optical profession is a mere routine matter, the simple details of which have been studied, arranged and the materials provided. Cooperation between optical and lighting industries has been organized by officials of both, and light prescribing is completely ready for application to patient's needs. It is necessary only to use the facilities provided.

The Light Prescribing Technique

The technique of light prescribing is simple and involves only three changes in the accepted routine of the examination room.

1. The near-point test cards are held in a kit which also holds the light measuring instrument. The patient holds the kit as he would hold a book.
2. The near-point cards are actual replicas of seeing tasks of average difficulty, instead of being ideal samples of fine printing.
3. The lighting used for the near-point examination is of measured and known quantity, instead of the unmeasured light commonly used.

None of these changes from ordinary routine consumes extra time or in any way complicates the examination. They demonstrate to the patient that light is essential to seeing, that some things are more difficult to see than others, and that better light makes seeing easier.

Nothing is visible in total darkness. With very little light we can recognize large objects. With more light, finer detail is discernible. The absolute minimum intensity of light needed to see a given object can easily be ascertained. With this absolute minimum intensity, the weak illumination must be compensated for by a powerful concentration of human seeing faculties, requiring physical and nervous energy expenditures in exhausting quantities.

The other extreme is broad daylight where the concentration of light energy makes seeing so easy that the human seeing faculties can relax and function perfectly. This is the ideal seeing condition.

Because eyes differ, established minimum desirable intensities are not expressed as absolute quantities, but are given range. The low point in each range is desirable for young eyes in perfect condition. The higher ranges are for less than perfect eyes.

The practitioner's own knowledge of his patient's eyes will dictate whether his prescribed minimum for each task will be the low minimum for normal eyesight, or a higher minimum to compensate for sub-normality due to disease, age, abuse, or other causes.

We feel confident that you will give serious consideration to the practical application of the Light Prescribing Technique on your properties, and complete information is available through the Westinghouse Lamp Company, the General Electric Company, and the Sight Light Corporation.

The foundation has been laid and is now ready for you to present this story to the members of the Optical Profession. They are your customers. Should they not be informed of these new developments for making a greater and more effective use of your service?

Market Development

(*Continued from page* 106)

government is restored. Our problem will not be so much to develop markets as to select those particular opportunities in which we may function to the best advantage. I do not mean that we should fail in trying to anticipate industrial requirements, or to relax study of ways to best serve our present business. But the indiscriminate loading up of plant and distribution capacities certainly would be most unwise.

Our adversaries would be delighted to put us in a position where we would need large amounts of capital to care for increased power demands, and particularly happy to discourage additional investment by the public in our business. Nothing would suit them better than to have us come to the bureaucracy, hat in hand, and beg for financial aid. The price of government funds would be to put bureaucracy in partial control—a brand of bureaucracy that aims at nothing more or less than complete control. They are all too willing to take our place on any plausible pretext.

Thus, in considering market development, carefulness is needed along with research and wide-awake salesmanship. We must bear in mind that we are not merely in a state of competition, but in a state of political and economic warfare. That is hard to comprehend, but that is where we are.

In conclusion, I want to reaffirm my faith in our industry, its permanence and future prosperity. The evil looking shadows that hang over it today will be dispelled. The industry will progress with the pace of the country and generally somewhat in advance.

My belief is based on the following reasons:

First, the industry as a whole is sound from the standpoint of economics, engineering, finance.

Second, it contains a large number of extremely able, experienced and forward looking executives, technical experts, and workers who have implicit faith in honest commercial ownership and management, and the importance of salesmanship is being recognized as never before.

Third, when the foolishness, waste, deception and inevitable failure of government power projects are generally demonstrated and known, this knowledge will coincide in the public mind with intense dislike of public debt, high taxes, and the political control and operation of any and all kinds of industrial and business operations.

It carries with it the conception that utility holding companies will come under reasonable and workable Federal regulation, and that leadership within the industry will rise to the times in which it finds itself.

And in closing I would repeat: "Fear is a poor master; reasoned confidence, a much better one."

Give the courage and resourcefulness of the younger generation full opportunity to prove their worth in this critical battle against Socialistic disintegration.

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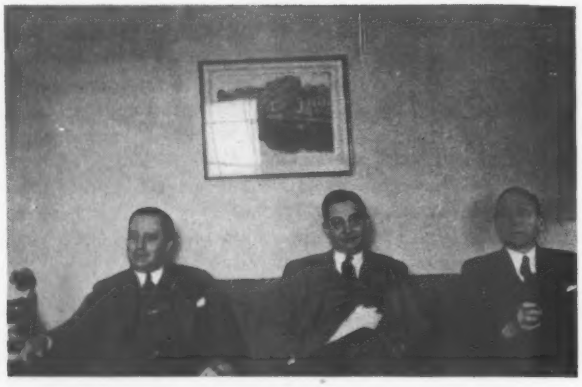

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E. W. Ashmead, Tennessee Electric Power Co., Chattanooga, Tenn., and L. R. Parker, Commonwealth & Southern Corporation, New York, N. Y., talk it over.

Charles A. Collier, Georgia Power Co., Atlanta, Ga., going after the eggs at breakfast in Edgewater Beach Hotel while Kenneth McIntyre and O. C. Small look on.

ASH (REDDY-KILOWATT) COLLINS' CANDID CAMERA PICKS UP A FEW PERSONALITIES AT THE SALES CONFERENCE

Our Air Conditioning Market

By C. E. Michel

Vice President, Union Electric Light and Power Company

An address before the Third Annual Sales Conference, Edison Electric Institute, Edgewater Beach Hotel, Chicago, March 25 and 26, 1936.

WHEN air conditioning first attracted our attention as a possible load builder, we thought of it in terms of summer cooling and dehumidification only. Summer air conditioning still produces the major electric demand from air conditioning, but other phases of air conditioning also warrant our favorable consideration. The intensive promotion of the manufacturers and utilities has made air conditioning a magic word, and predictions made by those not always well informed have caused air conditioning to be regarded by some as a panacea for all our personal and national ailments. As a result, the catch phrase "air conditioning" came to be used for many things which had nothing to do with air conditioning. We had air conditioned shoes, air conditioned underwear, and we had many devices which supplied perhaps one of the elements of air conditioning. Confusion arose in the public mind until the situation threatened to injure the legitimate air conditioning industry.

Fortunately, this matter has been corrected. In considering our air conditioning market, I am going to talk about air conditioning in the light of the definition set up by the Better Business Bureau and approved by many organizations such as the American Society of Heating and Ventilating Engineers, Air Conditioning Manufacturers' Association, and the American Society of Refrigerating Engineers.

This definition is as follows:

"Summer Air Conditioning should perform, as a minimum, the following functions:

1. Cool the air.
2. Dehumidify the air.
3. Circulate the air.

"Winter Air Conditioning should perform, as a minimum, the following functions:

1. Heat the air.
2. Humidify the air.
3. Circulate the air.

"Year-Round Air Conditioning should perform, as a minimum, the following functions:

1. Cool and dehumidify the air in summer.
2. Heat and humidify the air in winter.
3. Circulate the air.

"It is understood that the functions required by the season of the year are performed automatically and simultaneously to meet the specific minimum requirements of the user."

MR. MICHEL

In addition to the air conditioning market defined above, we have an energy load which can be obtained from auxiliary equipment. Of particular interest in many sections of the country is the ventilating market to circulate air and to bring in air from outdoors or to exhaust it. Residential attic ventilation will build a consistent load, and there are a number of manufacturers who have developed excellent equipment and have set up retail outlets with whom we can cooperate or for whom we can act as dealers. There are many places where air conditioning cannot be justified for economic reasons and all of these are good prospects for ventilating equipment.

Winter air conditioning offers an attractive field for selling additional electric energy. During the winter, fans for circulating air and pumps required for supplying water for humidification offer a daytime load with a good load factor. In St. Louis, the ventilating phase of winter air conditioning is required from fourteen hundred to fifteen hundred hours during the heating season, taking into account only the normal daytime building occupancy. Humidification is required for a like period. In an office building installation in St. Louis with a connected load of about sixty horsepower, these two functions aggregated 44,194 kilowatt hours during the season. A similarly attractive market is found in residences where winter air conditioning is coming into increasing use. A residential winter air conditioning system in the average seven or eight-room residence will have a one-third horsepower fan and will be required for about twelve hundred hours during the heating season with an energy consumption of approximately 400 kilowatt hours.

Summer air conditioning represents the largest potential market for the sale of power. It is by far the most spectacular and has the greatest public appeal and acceptance. Because of these reasons, its quick growth has centered attention of the public on all phases of air conditioning. We heard comparatively little about winter humidification or cleansing of the air before the time that summer air conditioning captured public fancy. Our experience shows that summer air conditioning is the opening wedge to the sale of year around air conditioning.

The summer air conditioning market divides itself into three general classifications: Industrial air conditioning, commercial air conditioning, and air conditioning for personal comfort. The industrial market is one which varies widely with different sections of the country. In those sections where the textile industry is a dominant factor, a substantial air conditioning market can be found. Many other industries such as the tobacco and candy industry require summer air conditioning and need but little encouragement to install it. There is also a widely diversified group of industries which can make use of air conditioning to a great advantage. As an example, I might mention match factories, the production of waxed papers, the photographic and X-Ray film

industry where we will find prospects and thus build additional load. This market requires intensive cultivation by experienced sales engineers.

Our second summer air conditioning market is the commercial market. Here we have enough experience to be able to look back over the results of the past few years to know definitely where our market is. In St. Louis, retail stores are the largest single classification in the commercial group and this position has been maintained over a period of years. As of December 31, 1933, there were fifteen retail stores with summer air conditioning in St. Louis. During the year 1934 ten were added; and during the year 1935 twenty-five were added, making a total of fifty. Next in line are independent restaurants and liquor dispensers, followed closely by sales and display rooms not engaged in retail business, then hotels and theatres. Undertakers, banks, beauty parlors, broker's board rooms, clubs, and hospitals offer a tremendous opportunity for immediate development.

Out of 520 summer air conditioning installations on our lines as of February 29, 1936, 36 were industrial installations and 173 were classified as commercial. That is 209 out of 520, or about 40 per cent. The other 60 per cent, or 311 installations, are for personal comfort in residences and offices. This comfort group, however, represents only approximately 13 per cent of the total connected load as against 75 per cent for the commercial field. The reason for this, of course, is the fact that the sizes of the installations are much smaller and include self-contained equipment. In this group of 311 installations on our lines, three are complete office buildings, 111 are offices or suites of offices and 197 are in residences.

It is interesting to analyze these installations by size to see just where they fall. Out of 520 installations, 56 are ½ horsepower or less; 251 are between ½ horsepower and three horsepower; and 213 are over three horsepower. The residential installations vary from one-half horsepower up to fifteen. The majority, then, are between one-half and three horsepower. This is particularly true in the residential and office market in the group for personal health and comfort. Out of 308 installations, 204 are between one-half horsepower and three horsepower, inclusive, with 53 one-half horsepower installations, leaving only 51 installations larger than three horsepower.

In retail stores, 32 installations are larger than 7½ horsepower and only 12 are less than three horsepower. Summarizing the classification by use and size of summer air conditioning, I believe it is fair to state that the bulk of our market for immediate results in summer air conditioning lies in the personal comfort market for residences and offices, and in retail stores, restaurants and liquor dispensers, and that the bulk of the installations will be larger than one-half horsepower and less than 7½ horsepower. This, in our mind, is the market that has the greatest potential sales possibilities.

Year around air conditioning is, of course, a summation of the loads obtained from summer and winter air conditioning separately, plus an additional ventilating load during the Spring and Fall when neither heating nor cooling is required, but when a generous supply of outdoor air filtered and cleansed is of great benefit.

Large installations with the resulting large revenue from kilowatt hour sales need careful contacts and it sometimes takes some two or three years to bring one of these jobs to a head. This market must, of course, be cultivated, but it is not the market that can be developed as aggressively and quickly as the market for smaller equipment. The experience of the past four years leads us to believe that the development of the market will be along these lines. We could go out and make a survey to determine the size of the market and arrive at the most appalling figures imaginable. We could walk into almost every establishment in the business district in St. Louis and in many thousand residences in an attempt to make a market survey and ask the owner or occupant whether they intend to install summer air conditioning, and we would invariably get the answer, "Yes, we will in the near future." I do not believe that such a procedure would give us a fair estimate of the potentiality of air conditioning load in the immediate future.

I believe that the growth of the air conditioning market will depend on the amount of development that we give it, that we can only obtain an air conditioning market after we ourselves have laid the ground work by making installations on our own premises and by intensive effort obtain a considerable number of commercial and residential installations. What, then, are we doing as an industry to develop this market? Your Air Conditioning Committee has done an intensive job of assisting the industry in finding and developing the air conditioning market. In the 1934 Report, the Committee pointed out the scope of the market and the methods of attacking it. Three plans were contained in this report illustrating how three different types of utilities organized for the task. Although two years have elapsed since this report was written, the information contained in it is still of value today. The work of the Committee in 1935, as given in its report, was devoted chiefly to the collection of factual data regarding different types of air conditioning installations, and a space was also devoted to give the manufacturers an opportunity to state their views of how the air conditioning market can best be developed.

This year your Committee is again stressing the collection of factual data. We believe that one of the best services that we can render in the air conditioning market is to have sufficient information on hand to tell the customer promptly, and with a reasonable degree of accuracy, how many kilowatt hours he is going to use on a particular type of installation in a given location. We must tell him how much water he is going to use, how many hours he is going to use his equipment, and we must have a background of experience which will create confidence. It is doubtful that any one city has a sufficient number of installations to do this by itself. For this reason, your Committee is collecting data from all over the country.

There must also be an understanding of the mutual problems of the utilities and manufacturers. Your Committee has established a contact with a like committee of the Air Conditioning Manufacturers' Association which we hope will ultimately result in much common good. These efforts, as well as the additional work being carried forward by the Committee, are a contribution which we are making as an industry toward disclosing the air conditioning market. There is evidence that the market exists. Intensive sales and promotion effort on our part in our own territory will bring a rich harvest in the form of additional kilowatt hours.

An Approach to Air Conditioning Sales

By L. R. Boulware

Vice-President and General Manager, Carrier Corporation, Newark, N. J.

An address before the Third Annual Sales Conference, Edison Electric Institute, Edgewater Beach Hotel, Chicago, March 25 and 26, 1936.

THE basis for your interest in promoting the sale of air conditioning is, of course, clearly in mind as a result of the load possibilities indicated in the report of your air conditioning committee. The attractiveness of the load from summer air conditioning has been noted, but of growing attractiveness, from both a sales and a load standpoint, is the winter air conditioning load. In the first place, it is an eight months' load instead of a four. In the home and smaller commercial application, where the broad market as to number and even as to horsepower is soon to be found, the connected load for winter conditioning is one-fifth to one-fourth of the summer cooling load for the same establishment. Then, as your Committee's report has pointed out, the air circulating apparatus will be run on through the summer, even though no cooling apparatus is installed, to give the comfort that comes from the evaporative effect of circulated air. Thus, in the small application, we can conservatively expect the winter conditioning installation to give forty per cent, and more in many cases, of the kwhr per year that would be represented by a summer installation in the same establishment. This ratio does not, of course, apply to the larger installations.

After the accomplishments of appliance selling and load-building in the home during the depression when the industrial load went down so sharply, I am sure no one needs to be sold on the desirability of domestic load-building activities. Not only because of the increasing practicability of the small, self-contained, portable summer air conditioning units, but—more importantly—because of the good apparatus and eager market now available for domestic winter air conditioning sales, I believe the time is no longer in the future, but is now with us, when the home market should be approached and sold. This is particularly true by reason of the fact that complete winter air conditioning installation costs now very little more than a good heating outfit fired with gas or oil. What there is in this extra cost can now be spread over

MR. BOULWARE

so long a period that the extra payments per month are hardly noticeable.

In selling winter air conditioning in the home—and elsewhere—we have a new powerful ally to add to our previous comfort appeal—and that is *health*, for air conditioning is the great comforter of the hay fever victim in summer and one of the greatest known preventatives of the common cold in winter.

How Air Conditioning Should Be Sold

Large spectacular installations will, I believe, continue to be sold by large national organizations who make a profession of engineering and installing the larger jobs. My own company is very anxious now, and will be for some time to come, perhaps always, to continue doing the complete engineering and installation job in connection with air conditioning government buildings, ocean steamships, mines, department stores, large hotels and office buildings, and other applications where the technical problems are such that they can not at the present time be successfully met. we still believe, by more than a few construction organizations, due to the rapidity of the advance in the art and the scarcity of really trained and competent engineers in the field.

These applications are relatively few in number, however, and the sales approach to the market we want to consider here can be made through the properly-manned and equipped local merchandising or construction organization working under the guidance of an experienced manufacturer.

Such a local merchandising and construction organization needs to have competent engineers, competent construction facilities or connections, a really creative selling organization—even though it consists of only one man—and preferably should represent a manufacturer who is giving constant training in both engineering and selling.

The broad market such selling is to reach has been pointed out in your report, and I know it is now ready for a vigorous, creative selling attack. The limiting factors are *first*, a sufficient number of men trained in air conditioning sales-engineering, and *second*, a sufficiently well-organized body of information and history of experiences available to all.

In our actual selling, once we have the trained personnel and the organized information, the procedure is relatively simple, and roughly the same as the creative solicitation programs that built the sewing machine, the cash register, domestic and small commercial refrigerators, the vacuum cleaner and the radio, not to forget the good old washing machine. I will not bore you with a recitation of the particular methods because they are familiar to all.

All these products above mentioned held plenty of hidden mystery, but they hit their stride in earnest, immediately upon their being put into the hands of the typical competent, well-trained, enthusiastic alert salesman or sales-engineer who *went out after the business.*

If I should presume to comment on the failings of so fine an industry as the one I have so lately entered, I would say that at the moment, the greatest sin of commission in our marketing is the tendency to spend all our time fighting over the business that is coming to us, and ignoring the outer, less competitive fields where creative selling can be used. Our present tendencies lead only

to such profit demoralization as we now have among both manufacturers and dealers and a fruitless wasting of margins that should be spent on creating a much broader volume of business. This does not mean putting prices up, but going about one's own business, creating one's own prospects.

A frequent question is whether air conditioning is to be cheaper next year, or soon thereafter. Those wishing to help the cause of air conditioning selling *now* may be interested in the factors which I believe are going to prevent sensationally lower prices and which will probably mean some increases.

1. There are a lot of inexperienced factors coming into the field now who are frankly buying their way in. No one can object to that, because that's one of the customary things in business, but the history of such things is that when they get in, their prices come in line with what experienced people have found necessary.
2. Volume does not hold out the promise in this field it has in others, because of the ratio of manufactured products to hand work on the job.
3. There is no margin for selling now, practically all business done being that which comes to us.
4. Some sort of inflation is almost surely ahead of us, and even now our costs of material and labor are sky-rocketing, not to mention all the extra delays, bookkeeping, and other overhead items occasioned by some influences that have heretofore been considered outside business.

There are those who feel that a creative selling program is not necessary in an industry in which everyone is academically interested and expecting great things. Certainly no industry, save possibly the automobile, was ever so blest as we are with a natural public interest in, and desire for, our product. But this does not necessarily mean sales, and we need to *precipitate* these interested people into *purchases,* through having advertising and salesmen interpret air conditioning to them in terms of what it will do for *them* in their *particular* shop or home—and then persuade them why they should have it *now,* showing how easy it is to own and pay for over a period of years. For instance, the "comfort" idea can be interpreted to a commercial prospect through expanding it to encompass the following:

1. Draws trade.
2. Holds and increases sales.
3. Customers spend more time shopping.
4. Increases unit sales.
5. Enhances prestige.
6. Builds public good will.
7. Has advertising appeal.
8. Attracts favorable comment.
9. Discounts unfavorable location.
10. Protects merchandise from spoilage.
11. Reduces shop wear and soilage.
12. Reduces mark-downs.
13. Facilitates try-ons.
14. Increases employee efficiency.
15. Reduces absentees.
16. Reduces labor turn-over.
17. Reduces cleaning and decorating costs.
18. Reduces distraction from outside noise.
19. Increases efficiency of lighting system.
20. Enables the boss to be comfortable and effective at work while his wife and family are in the mountains.

Similar interpretations are available for the home and for the various industrial applications.

How Central Stations Can Help Merchandise Air Conditioning

While the development of the market for air conditioning is largely a job for the manufacturers and the local trade, and while these elements will surely accept their responsibility, there is no question but that the cooperative spirit —such as your industry is showing here and has shown in the pioneering and promotion of refrigerators and other load-building items—will greatly hasten the immediate realization of the air-conditioning market possibilities. Knowing the facility you have shown for aiding in the promotion of industries that have preceded us, I am genuine in my hesitancy to make any suggestions as to how you can help us in the air conditioning industry. However, the obligation to do so has been clearly put upon me and so I will, at the risk of repeating what you all already know, submit a list of things I think you can do for the immediate acceleration of the air conditioning market growth.

1. First of all, have your offices and sales rooms air conditioned—at least air condition the sales floor or the place with the most traffic, and consequently the place where the public will have the most frequent opportunity to sense the effect of air conditioning.
2. Then, if you are now merchandising, go into the air conditioning sales and installation business in earnest, combining with your own facilities the sales and engineering cooperation offered by the manufacturer. I know of at least one central station which is making a creditable start not only in the selling, but in the actual construction and installation of fairly complicated air conditioning systems.
3. If you are not merchandising, but are cooperating with the distributors and dealers in your territory, I suggest you do the following:
   (a) Have air conditioning promotional exhibits on your sales floors.
   (b) Run air conditioning newspaper advertising.
   (c) Run direct-by-mail campaigns. A happy illustration is that of the present Commonwealth Edison campaign. In fact, I suggest the whole Commonwealth Edison campaign be scrutinized by all interested.
   (d) Enclose circulars with bills.
   (e) Have salesmen personally solicit offices, commercial and industrial establishments.
4. Then, whether you are merchandising or cooperating, give special rates for air conditioning installations.
5. Above all, help us eliminate the idea that air conditioning is the next great industry of the future. Help us teach people that it is a great industry *now,* and that *now* is the time for the individual to buy for personal use, and *now* is the time for organizations to enter the merchandising of it. I don't know whether this will be significant or not, but Carrier has over 9000 connected horse-power in their own installations alone right here in the city of Chicago on the Commonwealth Edison lines. Such ability to produce load for you does not come from a future industry, or one which has not arrived now; and yet what we have done so far is obviously just nothing in comparison with what we can do, and what we will do now, if we will work together on the program of creative selling, in which I am sure we can count on your doing more than your part.

Contractor and Utility

(*Continued from page* 110)

of his branch of the industry, and it was not until we made a study of the essentials of the electrical industry that we discovered the contractor, and when we did find him we found it impossible to lose him, because he was before us everywhere we went.

"We found him in the home, the industrial plant, in the office, behind the generators in our own plants. He was on the poles along the highway. No matter where we went, no matter where we sent our forces, he was there ahead of us, blazing the trail of things electrical, not only for the central station but for the manufacturer and jobber as well."

Gentlemen, I feel if you utilities will give some time to meeting with the Electrical Contractors of your territories,—if you will spend some time and money with them, you will feel as Mr. Edgar expressed in his address, and will also learn as he did through his comparative program, when he said:

"I have come to look upon the Electrical Contractor as the ambassador of the electrical industry. He is practically the foundation of our business and the backbone of our success."

Yes, we National Electrical Contractors of the United States and Canada are willing to be that *"Something* that draws together" the electrical industry in a constructive industry-building program, and sincerely hope that you, as utilities, will be willing to go along with us.

The Status of Industrial Power Development

By H. C. Webb, Jr.
Virginia Electric & Power Company

An address before the Third Annual Sales Conference, Edison Electric Institute, Edgewater Beach Hotel, Chicago, March 25 and 26, 1936.

DURING the past few days industrial salesmen from many sections of the country met and discussed the problems and possibilities connected with industrial power sales work. The interest shown by the men at this meeting indicates the enthusiasm of those actually on the firing line. The fact that 137 men representing 63 companies were present covering 27 states and the Dominion of Canada indicates the importance our industry places on industrial power sales.

The discussions covered competition from various forms of power producing apparatus, as well as the competition and possibilities of development in the lines of industrial heating, commercial cooking and baking, air conditioning, industrial lighting and industrial electrification. All of these applications of electric power are of great importance from a standpoint of possibilities of obtaining increased business.

Consideration was given to the organization and personnel of industrial sales departments, as well as to market development and relations with existing customers.

The industrial salesmen have done an exceptional job. For a number of years their primary problem was the replacement of isolated plants with purchased power. This market has been relatively small in recent years. During the past five years the work of the industrial salesman has, to a great extent, been defensive and devoted almost entirely to the handling of difficult situations arising from the low point of operations in manufacturing plants. Here again the record of business held by the industrial salesmen has been very good.

Power sales departments are charged with a heavy responsibility and in the past have been taken too much for granted by many in the industry because such outstanding results have been obtained. These men must concentrate on retaining the business we already have, and are constantly required to exert the greatest diplomacy and resourcefulness in contacting industrial executives. They must be always on

MR. WEBB

the alert to secure new and additional loads. They must keep abreast of the times; encourage and promote new applications for the use of the power they sell. Perhaps the greatest job in industrial power work is to sell to industries the advantages offered by electric utility service. Due to present conditions it now behooves us more than ever before to give careful consideration to industrial power sales.

Unfortunately, in the majority of companies, the industrial power sales departments have not been expanded sufficiently to permit the development of the business along as broad lines as should be the case.

This is probably due to the fact that only about two per cent of our total customers are in the large wholesale class.

In recent years the sales policies of the utility industry have been devoted almost entirely to the development of residential and lighting loads and only a few utilities have seriously considered the possibility of development of the industrial load.

If power sales work is given the same relative attention as the commercial and residential sales, the possibilities of future growth are unlimited.

We should adopt the principle that electric power has an application wherever a change in form or in content of any raw or manufactured product is desired. We must approach this subject with an open mind and have available rates designed to give the customer the service he requires in a manner acceptable to him, and which will render a profit to both the customer and ourselves. The field for the sale of electricity in industry has only been scratched.

Our wholesale customers nationally in 1929 consumed 59 per cent of the total kilowatt hours sold, and furnished us 32 per cent of our total revenue. These figures fell off to 49 per cent of the kilowatt hours and 26 per cent of the revenue in 1932, but have since climbed back to 53 per cent of the kilowatt hours and 27.5 per cent of the revenue in 1935.

While this portion of our business is subject to wider fluctuations than some other classes, we should not overlook its value from the standpoint of its effect on our overall power production costs. The basic load furnished by industry is vital in establishing our low production costs. Without this basic load I do not believe we could obtain such low costs which are now the rule rather than the exception.

The importance of industrial enterprises in any city is well recognized. They give employment to many people and provide support for a large number of families. The money earned by these workers is spent in the various local stores and establishments and since these places are also our customers we obtain increased electric revenue not only from the factories, but also from the homes of the workers and the stores in which they spend their earnings.

The sale of power to industry also has an effect on the employees of that industry in that they will realize to the fullest extent the benefits to be obtained from the use of electric service and as a consequence their use of our service in their homes will make them better and more satisfied customers.

In connection with the cost of pro-

ducing power in our own generating stations, we must not overlook the fact that the efforts of our own engineers, which have brought about these remarkable efficiencies have also brought about the development of power producing equipment which is available to industrial plants in competition with purchased power.

The technical developments of the past few years have had a tremendous effect on power generation. The most striking advancement has been in the rapid increase of steam pressure, which compared with other improvements has reduced materially the fuel consumption per unit of output. However, this reduction in fuel consumption often dwindles away to much smaller savings to the ultimate consumer after considering all costs up to the supply point.

In striking contrast to this relatively small gain are the economies which may likewise be made by the industrial plant with a well balanced electric and steam load. By taking advantage of the trend of higher pressure the construction of bleeder and back pressure turbines has made it possible for industrial plants to obtain large quantities of electric power as a by-product of the steam used in manufacturing processes at a very low incremental cost. Where we are faced with the operation of privately owned plants by industrials having a need for both process steam and electricity we can still obtain valuable load by interconnecting with their systems. In many cases this will provide for the sale to us of valuable capacity at times and the sale to them of large quantities of power in order that they may maintain a good heat balance. Generally speaking, there seems to be no need for any private plant to generate power on a condensing cycle, and it is reasonable for us to expect to get this business if we go after it. We must realize that many manufacturing plants of today present a serious competitive problem in the field of power generation. With all conceivable charges added the cost of power produced in plants having need for large quantities of exhaust steam is often so low with high pressure boilers and turbines that we find competition very difficult unless other factors have very great weight.

While the development of more efficient equipment has lowered our costs and has enabled us to further reduce our rates, it has at the same time narrowed the margin that for a number of years has been in our favor, and as a result greater effort than ever before is required to get and hold business against this kind of competition.

In addition to the developments in the steam industry and the increasingly great competition from that source we are also being faced with a renewed activity on the part of oil engine manufacturers. During recent years we have witnessed the development of low weight, high speed engines designed for application in small plants. These engines require a low investment per hp installed and their operating efficiency has been developed to a very reasonable degree. Their use is obtaining widespread publicity through the transportation and agricultural fields, as well as by direct advertising by the manufacturers. Recent programs developed by the Federal Government which contemplate financing the construction of privately owned power plants, offer additional competition from industrial customers. This competition cannot be ignored.

The arguments in favor of purchasing power instead of installing and operating power plants as part of an industrial undertaking are well known.

During the past ten years, however, our leading industrial organizations have greatly expanded, partly through mergers with other companies and partly through the growth of the original unit. The great size of the manufacturing plant thus permits the use of boiler and furnace equipment of large sizes, both thermally and economically efficient. The same extends to all power generating equipment so that the net cost per unit of power produced is comparatively low. Also the increased earnings of industry has in general improved their credit facilities so that obtaining money for power plant construction is not as serious a handicap as it was several years ago.

Since the beginning of the recent depression there has been increased competition among the manufacturers, and plant managers are keenly studying all possible methods of reducing costs. Items previously overlooked now receive serious attention and the question of power costs is no exception. Due to the increased use of power machinery to reduce the number of men employed, the total production cost represented by the power bill becomes a subject for discussion, particularly as the cost of power per unit of finished product increases.

Manufacturers of power producing equipment realize this condition and by no means overlook the possibility of disposing of their products to industrial plants. In many cases high pressure salesmanship by the equipment dealers persuades the industrial to erect its own station regardless of the economics of the situation.

It is most dangerous for us to assume that we have all the power business we can get, either large or small. We don't have it all, and we must fight to keep what we have. I need not go into more detail for you to appreciate the seriousness of the situation.

Equally as important is the load development and promotion of the industrial business.

For several years your industrial power and heating subcommittee has been considering the matter of flow sheets and after careful study we feel we have a solution which will fulfill the needs of the majority of the industrial salesmen. It is expected that within the next ninety days flow sheets covering at least five industries will be available for member companies.

The dissemination of this information not only to industrial salesmen but also to local superintendents and representatives in areas that do not justify full time salesmen should help materially to pick up loads as small as five and ten kilowatts that might otherwise never be obtained.

These flow sheets will be made out in a manner so that anyone not familiar with the industry under consideration can in a very short time obtain a working knowledge of the various uses for electricity in the particular enterprise.

Another phase of load development is one which I feel has had entirely too little attention from the utility industry. It has to do with the study of little known applications for which electric power may be sold to industry.

We have given a great deal of thought to applications of our product, but there has not been a sufficiently concerted effort on the part of our industry as a whole to fully study the possibilities of developing applications for electric power, particularly as it affects the sale of power to industrial customers.

The manufacturers of electrical equipment have developed many applications for purchased power and have been very gracious in their consideration of our problems, but the real prob-

lem is one requiring cooperative effort on the part of both the utilities and manufacturers in developing equipment to take care of little known applications.

Let me cite two examples: The first is the use of the reverse refrigeration cycle or heat pump for heating with electricity. One company has two such installations each requiring the development of special equipment. One of these has been in operation for two years and the other for nearly a year. Both installations were made based on estimates indicating the economic justification of the application. So far, the results obtained are better than the original estimates.

There has been a great deal of discussion pro and con on the feasibility of the application of the principle of the reverse refrigeration cycle. Generally speaking, it is considered a function of air conditioning. I see no reason why this principle cannot be applied in a number of other industrial installations. I believe that it has possibilities for use when process hot water is required in industry. Experiment with this equipment will cost money. However, if the experimental work proves the feasibility of such applications, unquestionably the equipment will be manufactured and sold.

The possibilities along this particular line are well recognized because if anywhere near the theoretical maximum efficiency can be obtained, we can make great strides in a new direction in the utilization of electricity in furnishing heat.

A second example is that of the development of an electric slasher for use in textile mills. In the opinion of several utility company engineers, the possible annual revenue in a few southeastern states from the use of this equipment, is in excess of $2,000,000. It is believed by these same engineers that the expenditure of less than $10,000 will furnish sufficient data to confirm or refute these estimates. The expenditure of this sum of money to investigate the possibilities of load development along this particular line should prove to be worthwhile.

Other applications of electricity for industrial heating will provide great outlets for the sale of electric power. The use of electric heat in industry is not a new subject, but the need for facts and valid data is evidenced by the efforts of many in the industry to study the matter and determine the economics of electric heating. The use of electricity in the metallurgical and chemical fields will furnish us with a surprisingly large amount of business in the years to come. While some industrial firms are using electricity for large furnace operations there are many other heating processes which may be done better and more economically with electricity. This applies not only to large equipment, but also to small heating devices. One indication of the rapid development of industrial load when attention is directed in a particular channel, is the fact that one large manufacturer of the so-called midget heating devices used in industrial plants, sold during the past three years approximately 300,000 kilowatts of this equipment consisting of 330,000 separate units, producing an estimated annual average revenue of $30 per kilowatt. The use of this equipment alone represents approximately $9,000,000 a year in annual revenue. In all likelihood the total volume of this business obtained during the past three years will represent a figure well in excess of $20,000,000 a year in revenue. This indicates the possibilities that exist in small industrial heating applications alone when well directed efforts are made.

In the heating field we also have keen competition from natural and manufactured gas, and oil, but electricity may be employed for almost any heating operation and provides more accurate control and more efficient application than any other means.

The development of the air conditioning load is going ahead by leaps and bounds as you all know. New applications are being developed almost daily. In some sections of the country I am told that this load, together with ice plants and domestic refrigerators, has so changed the system load characteristics that serious consideration is being given to a material change in rate forms in order to take advantage of this situation.

The possibilities for increased load from industrial lighting hardly need be mentioned as they are so generally accepted. Industrial plant managers are rapidly becoming aware of the value of good lighting in increasing their profits.

Following along with the development of applications the question of rates, as is always the case, becomes a matter deserving the most serious consideration.

Any discussion of industrial power rates is apt to be obnoxious. However, if they are properly designed and with the engineering and sales talent available in our business, we will obtain all of the business to which we are economically entitled, giving due—but not undue—consideration to the fundamental advantages of purchased power.

There should be sufficient flexibility to permit the sale of power to a customer under any condition which he could secure if he had his own plant. We may need to develop rate forms entirely different from those generally accepted today.

Too frequently we look upon unusual industrial loads as being of a nature and having characteristics which we do not like, and the attitude is taken that something is wrong with this load and this customer. I feel that we should take an entirely different attitude—not what is wrong with the load, but what is wrong with us, that we cannot provide the kind of service which the customer wants at rates which are profitable to both of us. Again we get back to the matter of flexibility of rates.

The customer's overall costs for purchased power must be very close to his costs from an isolated plant provided the conditions of service are the same. Our customers are interested in our investment in plants, transmission, distribution and substation facilities only insofar as they help to give him the service he wants. Taking all factors into consideration if we can't be competitive and cover these costs—and when I say competitive I mean get the business at a profit—we don't deserve the business.

This is not only a challenge to our power sales departments, but to our engineers and accounts as well.

Bigness from a standpoint of capital structure is being criticized in many ways, and in most localities utilities are classed as "big" in relation to other local industries. This designation can be a real compliment if it indicates an ability to act and decide matters promptly and to afford lower costs than can be obtained from the operation of numerous smaller units of the same nature.

Our main reason for being in the business of producing and distributing electric power is our ability to render the type of service our customers want at a cost and under conditions attrac-

tive to them. I firmly believe that our business will continue to grow in the future as in the past. The intelligent, untiring efforts which brought about our past growth will bring even greater developments in the future.

The value of advertising as applied to sales of electricity to industry is a controversial subject. In my opinion we should break out with a concerted national advertising movement as a means of developing and holding industrial power load. Our competitors who produce power generating equipment do not hesitate to advertise in the newspapers, magazines, and with other media, and this type of advertising has increased materially in the past several years. If advertising is good for them, I see no reason why it should not be good for us.

The principles of sales promotion are fundamentally the same whether we are selling power or automobiles or flat irons. The application of these principles may differ, but because we have never done such a thing is no reason why we must not do it. Some of the most successful firms in the world did not firmly entrench themselves as leaders until they had expanded their advertising program. Others who at one time led the field curtailed their advertising appropriations and suffered severe losses. Our appropriations for advertising electricity are woefully small and if we should double our appropriations our percentages would still be much less than those of the most successful business establishments.

Some advertising is being done by the leading electrical manufacturers, but due to the nature of their business they must stress motors, controls, and other equipment rather than purchased power. National advertising of purchased power should have results equally as beneficial as other similar efforts. This program can only be handled by the full cooperation of the electric utilities. The local utilities could tie in with, and follow up, the national work with local ads and with a program best fitted for their individual requirements. This should help materially to further sell the advantages of using purchased power.

In conclusion, let us remember that our wholesale customers nationally use over one-half of the current we sell to ultimate consumers—over 60 per cent if we include street, interurban and steam railways—and yet from 1928 to 1935 the increase in consumption of current by this class was less than 10 per cent, while the national increase in domestic and small farm business was over 60 per cent, and that of small commercial business was over 20 per cent.

Is this surprising when we consider the attention given and the amount of money spent in developing these various classes of our business? It is a matter of business history repeating itself—when intelligence, effort, and the resources of a business are devoted to the development of that business the results will speak for themselves. We have only started the development of our industrial load, and we should actively and aggressively start pushing it.

The fact that even with all of our problems we have lost so little business to competition in recent years is a tribute to the economic soundness of our industry and to our industrial salesmen who are on the firing line.

Let me repeat—an excellent job has been and will continue to be done by those connected with our industrial sales departments, but that job has just begun.

Provide sufficiently adequate facilities for your industrial sales departments—see that data on known power applications are properly and widely disseminated—encourage a breadth of vision and extend a helping hand financially in the development of little known applications for the sale of power in industry and last, but not least, apply those principles of sales promotion and advertising which have proven so worthwhile, not only in other lines of endeavor but in other branches of our own business.

If this is done, the growth of the industrial load will be so great that we will wonder why we did not start long ago.

G.E. to Continue to Sponsor "New American" Homes

As a continuation of an effort launched last year to demonstrate the value of scientifically - planned, up-to-date homes both to prospective home-owners and to industry, a new large-scale demonstration home-building program for 1936 has been announced by President Gerard Swope of the General Electric Company.

The company itself will build no houses, Mr. Swope explained, but will again sponsor a cooperative movement of material and equipment manufacturers, architects, builders, and other related groups, as it did in 1935, when more than 300 homes were built, opened to public inspection and many now lived in all over the country as a result of a similar activity. General Electric will be responsible for another large field organization of 170 local committees to handle the administrative details of the plan, contributing to the make-up of these committees from its own personnel, and supplying much of the promotion necessary to make the program known to the general public.

The plan will be carried on as an activity of the recently-formed General Electric Home Bureau in New York, of which C. M. Snyder is manager. J. F. Quinlan, manager of the 1935 "New American" activity, will again be in direct charge.

The 1936 program will differ in certain essential respects from that of last year. It is expected that about 400 homes will be required to carry out the aims of the program in the various sections of the country. The chief emphasis will be placed, not on number but on the quality of the construction and arrangement to the end that the finished house will demonstrate the "New American" concept and the accumulated progress in house design and construction gained during recent years when building was at low ebb. Leading magazines in the field of home-making, which last year saw in the program an opportunity to express in definite form the subjects they had been treating editorially for several years, will this year provide original house plans from which builders may make a selection.

A builder, working on any community with one of the "New American" committees, will not be limited to the house plans made available by these magazines, however, but may use plans produced by a local architect and receive suggestions and help in matters of engineering, equipment, and arrangement from the General Electric Home Bureau. As part of the plan, houses will be built in cooperation with power companies, local newspapers, electrical dealers, decorators, and furniture and department stores, with the exact details of the program worked out to fit each community. National promotion will spotlight this activity.

The Electric Range Market—Today and Tomorrow

By Reese Mills

Westinghouse Electric and Manufacturing Company—
Chairman, Range Section of N.E.M.A.

An address before the Third Annual Sales Conference, Edison Electric Institute, Edgewater Beach Hotel, Chicago, March 25 and 26, 1936.

FIRST I would like to express my appreciation for the privilege of appearing on your program here today. It indicates that the electric range has a very prominent place in your merchandising sales plans. I am sure that all members of the Electric Range Section of NEMA appreciate your interest—and your invitation to attend your Third Annual National Sales Conference.

After accepting the invitation to speak here, I immediately wrote to all members of the Electric Range Section, asking for their opinions and suggestions. I did not want to express the opinion of one company — but the opinion of all companies. The basis of my talk today is a summary of their recommendations.

As I sat in your meetings yesterday and the day before, I was struck with the frankness with which all subjects were presented. I am going to proceed on the same basis—because we are certainly partners in this business. Your problems are our problems—and our problems are yours. It is difficult to talk to all of you at the same time—because represented here are utilities which merchandise—and some which do not—some with practically no electric ranges installed on their lines—others with saturations up to 40 per cent and which have had many years of experience in selling electric ranges. My statements, therefore, do not apply in every individual case.

In order to get a clear picture of the electric range market as it exists today—it is necessary to refresh our memories with some of the problems in selling electric ranges in the past.

There was an old question which must have been asked a thousand times—and it is—"What is wrong with the electric range business?" It has been answered in many talks, many private discussions and many trade paper articles. Facing facts, I ask it again this morning—What was wrong? The answer is—There were several obstacles

MR. MILLS

in selling electric ranges, most of which were not present in selling other major appliances. The principal difficulties were . . .

First—Installation Cost Was Too High

The electric range was the first appliance that required special wiring. This requirement brought up many new problems in merchandising that have taken considerable time to even partly solve. However, its partial solution for electric ranges will probably help the sale that will come later of other heavy current consuming appliances requiring special wiring.

Second—Electric Rates Were Too High for Economical or Satisfactory Cooking Cost in Many Localities

This obstacle is rapidly disappearing, due to the many rate reductions made in the last few years. The cost of operating an electric range in many communities is now no more than the cost of other fuels for cooking—and in some localities less.

Third—Closed Markets in Many Combination Gas and Electric Company Properties

There seems to be a trend in some combination companies to organize both the gas and electric departments to merchandise their individual products on an equal basis. This has been very helpful—and the electric range manufacturers hope that further progress can be made in this direction.

Fourth—Electric Ranges Were Slow

This obstacle seems to be entirely removed in present-day electric ranges with their improved, efficient, high wattage units. We hear very little about slow ranges today and then only real old ones that have been in service for a number of years. Present-day electric ranges are fast.

Fifth—Electric Ranges Were Too High in Price

There have been constant improvements and refinements in electric ranges—but even with these improvements—there have been constant price reductions. Many new ranges announced by manufacturers this year retail for under $100.00—and are better in performance—and more attractive in appearance than ranges that sold for twice this amount six to seven years ago.

Sixth—Electric Ranges Required Too Much Service

Every manufacturer has spent huge sums of money in research and development and has in the last few years made great strides in developing and marketing ranges with greatly improved switches, heating units, controls and other parts—that have reduced service to a point where it is no longer a serious objection. Every manufacturer is going to continue to work on this problem and further progress can be expected.

* * *

As we quickly review the past, we find these difficulties have been greatly

reduced or have been corrected. Electric range sales showed a very healthy growth from the year 1921 through 1930—the average rate of increase was 30.2 per cent per year. When the crash came—electric range sales crashed right along with everything else and they hovered around a low mark to the end of 1933. Then sales started upward—strange, too—because at this point (the year 1933) the electric range had actually been on the market for twenty years.

As we work and read today, we find an abundance of light. It is hard for us to realize that it required twenty years to sell the first 1,000,000 homes on using electricity for light—twenty years to sell the first 1,000,000 vacuum cleaners—twenty years to sell the first 1,000,000 washing machines—twenty years to sell the first 1,000,000 electric refrigerators—and in every one of these cases sales increased very rapidly after this twenty-year promotional period that was required to sell the first 1,000,000.

The electric range had exactly this same experience, even though starting with handicaps. It was twenty years old in 1933. Slightly over a million electric ranges were in use at the end of that year—and then sales began to increase very rapidly. Nineteen thirty-four sales showed an increase of 148 per cent over 1933 and 1935 sales increased 79 per cent over 1934.

I think it will be interesting for us to pause a moment and review the status of this industry at the beginning of 1936.

215,000 electric ranges were sold in 1935—a new high mark.

1,500,000 electric ranges had been sold.

1,350,000 electric ranges in service. 6.5 per cent saturation of wired homes.

Allowing an average annual consumption of 1500 kilowatt hours per range—electric ranges now in service account for approximately 15 per cent of the total kilowatt hours sold to domestic customers.

Applying an average rate of 2.5¢ per kilowatt hour, the revenue from these electric ranges amounts to over $50,000,000 annually.

There are now approximately 14,000,000 homes with satisfactory cooking rates.

These figures point out the market and revenue possibilities as we look into the future of this industry. Most of the electric range manufacturers have carefully analyzed the market possibilities for the next three years. An average of these estimates is:

1936	**306,000 ranges**
1937	**410,000 ranges**
1938	**532,000 ranges**

Full consideration was given to all favorable and unfavorable factors as they exist today, and we believe that these estimates are very conservative.

First, let us look at the principal unfavorable factors that are still retarding sales in some communities. Improvement in these problems will unquestionably increase sales.

First—Installation Cost Still Too High in Some Communities

Considerable work is now being done on this problem in various trade association committees and perhaps further progress can be made. Many utilities, working with local code authorities and contractors, have found a reasonably satisfactory solution.

An interchange of information on wiring cost and methods might prove helpful to those companies which now find range sales slow or impractical due to high installation cost. Particular attention should be given to providing range wiring in new homes.

Second—We Believe Separate Combination Gas and Electric Company Sales Organizations Would Increase Sales

We believe that serious consideration should be given to this problem and that wherever possible combination gas and electric companies make their plans so both departments can actively merchandise their products on an equal basis. A recent case of a combination company operated on such a basis showed that both groups increased their sales materially and that it resulted in improved customer satisfaction.

Third—Greater Dealer Participation Would Increase Sales

We recommend that you give full consideration to further dealer development programs, believing that with more and better dealers the sales volume will be greatly increased. Several of the speakers here Tuesday were very enthusiastic over the volume of dealer sales in their properties. Dealer sales nationally showed a surprising increase in 1935—accounting for about 40 per cent of the total volume. Estimates for 1936 are as high as 50 per cent of the total volume.

The electric range manufacturers are now organizing in their own company or through their distributors to cooperate with utility companies in establishing better dealer coverage in those communities that are now favorable to dealer participation.

One trade magazine recently stated the following: "There are not enough retail sales people selling electric ranges" —and further—"That any appliance required good retail outlet coverage before it reaches volume sales."

It is interesting to note that of the total number of worthwhile appliance dealers—

70 per cent sell washing machines
71 per cent sell refrigerators
81 per cent sell small appliances
53 per cent sell ranges

Included in this 53 per cent are all of the utility stores now handling ranges. This would indicate that there is a need for more retail outlets for this appliance.

Utility company promotion and selling, of course, is vitally necessary and is the spearhead of the electric range movement. It is essential that it be continued and it should be even more powerful during the coming years. In all communities where the utility company range promotion has been and is effective, the market is opening up rapidly for dealer participation and this promotion becomes less expensive per unit installed. In communities where there are low saturations, this promotion is necessary to create greater public acceptance and build for the future.

One of the market maxims in the appliance field is that the greatest retail profits are made on any appliance after the appliance has reached a saturation of over 1,000,000 units and before a saturation of 5,000,000 units is reached. The electric range is in that happy situation now. Alert dealers are beginning to display ranges on their floors and are combing their customer list for range prospects.

Including all utility and dealer stores, there are now 13,700 stores handling electric ranges. Now, of course, you are not interested in this figure of 13,700 as such—but it does show that there are over 6000 good, worthwhile dealers selling other, large appliances who are not handling electric ranges. It shows that there is plenty of room for dealer development.

A recent check of these worthwhile dealers showed that the majority of them are eager to become more active in selling this appliance. A check of the dealers not now handling electric ranges showed their interest is running high and that many of them, in communities where conditions are favorable, can be started in the electric range business if the manufacturers and utilities will help them with their sales prob-

(*Continued on page* 153)

Intensified Selling in the Low Income Groups

By C. A. Collier

Vice-President, Georgia Power Company

An address before the Third Annual Sales Conference, Edison Electric Institute, Edgewater Beach Hotel, Chicago, March 25 and 26, 1936.

I DID not bring all of these papers up here for the purpose of reading them, but because the last time I had the pleasure and opportunity to talk to an Edison Institute meeting, some two years ago, I was, upon finishing my talk, accused by some of being a capital liar, and those who were more kindly disposed, simply said, "Oh, he's just a little bit crazy, anyway." So I fetched along, to use a local expression, some papers that may serve in a measure, at least, to establish my veracity, and to indicate to you that all of these things which we say are going on in the Southeastern area are not just the idle dreams of those of us who are trying to do them.

It was two years ago in Atlantic City that we first announced our idea of an intensified sales promotion program, and if I remember correctly (and I am not sure I am right, because I was rather flustrated and I admit quite scared), I said at the time that the ability of our Southern companies to do a real sales job depended upon our ability to reach into that low income group, which, with you Mid-Western, New England, and Far Western companies, is probably a small percentage of your potential field, but which with us constitutes practically 100 per cent of our customers.

What I will say to you this morning is equally pertinent in Tennessee, Alabama and Georgia. I cannot visualize one without the other. To deal with one without the other would leave the picture incomplete, as the problems of the three are more or less identical.

In other words, our problem in the South is not how many completely electrified homes we can put into service, but how nearly we can approach, to some degree, electrification of the homes among our great mass of customers.

I told a story at Atlantic City which to my mind is illustrative of the utility situation in our area. I would like to tell it again. The story goes that in the mountains of Kentucky, in the good old days, there were two rather prominent families. As was often the case, they disagreed over something, and decided to shoot it out. Out of that decision grew a family feud which lasted over a generation or so. Sniping from behind pine logs and turns in the road sadly depleted the ranks of the respective families. Then, it happened one day that a very attractive young woman of one faction and a young man of the opposite faction met on the road, "took up with one another," and after the proper courtship decided they would get married, much to the delight of all the inhabitants of the mountainside area, as peace and harmony might add to the longevity of the people of that area, inasmuch as the feudists sometimes made mistakes and sniped the wrong fellow from back of a stump.

MR. COLLIER

The wedding day came along. Every man attending the ceremony was packing a gun. But it looked as though the ceremony would go off in good style, all the old troubles would be buried and friendships cemented. The boy and girl stood before the parson, who said: "Sam, do you take this here gal for better or for worser?" About that time one of the girl's family said, "Look here, parson, there ain't nothing worser about that gal. If there's anything worser, it's that man."

Well, when the shooting was over and the smoke had cleared away, the girl was the only one left standing in the cabin. She looked around. There were a couple of dead brothers, one or two dead uncles and aunts and prospective in-laws lying around, but not a soul was on their feet in the little cabin but the girl. She surveyed the situation calmly, and then remarked: "Them thar new-fangled six-shooters shore have played hell with my prospects."

That is just the "fix" we were in two years ago. All of this TVA business, PWA loans, all the agitation for Government ownership in our area bid fair to "play hell with our prospects" if we did not do something about it.

Did you know that 75 years ago Georgia was one of the richest states in the Union? That is a surprise to many of you, but you can look up the records and you will find that statement true. But about 70 years ago today, a certain gentleman from the Mid-West, with a lot of followers, decided to take a walk through Georgia. When he had completed his walk, he had succeeded in destroying property values in the state to an extent greater than the destruction of property in northern France during the entire period of the World War! He left us with a poverty-stricken state. For 60 years we have been trying to build it back. Incidentally, that same condition applies in a slightly lesser extent in Tennessee and Alabama. We are not complaining about it; we are not going to sit down and wring our hands about it, because that is not going to do us a bit of good, but we think we are *doing* something about it.

When Mr. Greenwood asked me to talk to you about selling in the low income group, it meant I had to talk about selling to every person we had on the lines of the company. Frankly, I thought he had asked me to talk about selling in the low consumption group, and I struggled under that impression until I got to Chicago, when he said, "No, Charlie, I said the low income group." "Ernie, my goodness, I added, you realize there isn't much else but that group down our way." And he replied,

"Those are the boys you are selling and we want to get the low-down."

We set up a three-year program for the sale per annum of 22,000 refrigerators, 14,000 ranges, and 6000 water heaters, totaling approximately six and one-half million dollars' worth of electrical current-consuming devices per annum to a total of 300,000 customers. We were promptly accused of being visionary. That was two years ago.

Incidentally, I can talk about the job down there now and boast about it, because I haven't had much to do with it, practically speaking, during the year of 1935, when the trick was turned. I was out of the state the majority of that time, and insofar as my company is concerned, the job has been run by the men and women in my department without my having very much to do with it. Therefore, I can boast about it without being accused of being egotistical.

These three companies in Tennessee, Alabama and Georgia are as alike as peas in a pod insofar as their general problems are concerned. Each one thinks it is a little worse off than the others, but, frankly, I cannot see any great difference between them. There isn't much difference between being hanged and just being hanged. If you listen to Mr. Ashmead or Wells Stanley, both will swear that they are worse off than Georgia; and if you listen to me, I will swear that Georgia is worse off than they are.

Now, let us look at the territory we are operating in. These three companies, all properties of the Commonwealth and Southern Corporation, have built transmission lines over a tremendously vast area of approximately 115,000 square miles. This area is greater by 10 per cent than all the area in New England, plus New York, plus Delaware. The white population in this area is less than the white population in the State of Massachusetts. The purchasing power per capita of the three states occupies the very honorable (?) position of being the three lowest, barring one or two, of any states in the Union. The value of agricultural products produced, according to the Census of the Department of Agriculture, for these three Southern states, is $58 per capita year, whereas in the so-called West-North Central area it is $197 per capita year, or roughly, three and one-half times as much.

We have the theory that the low-use customer is not only a financial liability, but is a liability from a public relations standpoint as well. No consumer who pays the company a reasonable bill for his electric service and who makes a reasonable use of that service is a complaining customer. This has been true in our experience. If you will go back through the experience of the industry, you will find that in the old days of constant complaints, such complaints emanated largely from the so-called "minimum bill customer." We likewise felt that, inasmuch as our population could buy automobiles, could buy various and sundry articles of clothing, could spend money at the movies, and could manage by one way or another to get back and forth all over the territory, it could likewise manage to buy a few of our kilowatt-hours.

Now, I wish, if you will bear with me a few minutes, to outline briefly the things we set out to do.

We planned for an annual sale of 22,000 refrigerators, 14,000 ranges and 6000 water heaters—not dealer sales, but company sales. The dealer sales were set up at a slightly lesser figure, which, roughly, almost doubles the figures I will tell you of.

This represents the job we had to do. It would take at least that to survive. Failing that, we perish.

The first step in the program was to install a so-called objective rate scheme, which was designed to cash in on the psychological desire of the customer to get something free. That objective rate scheme held the revenue as it was, but it gave a certain number of free kilowatt-hours to every customer who increased his use of the service by whatever means at his command, and, after he had increased his use to a certain extent, he went on what we termed an "objective" or "inducement" rate schedule. This rate schedule was at a level much below the existing schedule. The rate was made effective in all three of these companies, and the results have been phenomenal.

Immediately upon the heels of this plan, these companies expanded their sales departments to a point which, at that time, seemed in the opinion of many to verge on idiocy. (At least, the average individual would have been tempted to express that opinion, especially in the light of the then existing figures on appropriations made available for a new business department.)

To give you an example of these figures, I must now come back to my own company, since many of these figures had to be compiled after I reached Chicago. However, I believe that these figures are applicable equally to Tennessee and Alabama.

Before we started out on this plan we used to spend about 78 cents for new business expense and merchandise profit-and-loss for each dollar of new annual revenue, and this expense averaged about three to four dollars per customer year. In the new program, which has now been in operation for nearly two years, we expend ten to twelve dollars per customer year for sales promotion expense.

Let's see what has happened. When we were spending three to four dollars per customer year, it cost us 78 cents for each dollar of new revenue. When we jumped to ten to twelve dollars per customer year, the expense dropped to 23 cents per dollar of new revenue. Think that through. We trebled the outgo, and we reduced the expense per dollar of new revenue to a little less than one-third of what it had formerly been, and we have not yet reached the limit. In my humble opinion we can jump that expense to $15 per customer year, and we can lower that new business expense in my company to 18 cents per dollar of new revenue. In addition, we have not crushed the dealer. On the contrary, the dealers in these three states have sold more heavy-duty devices than they ever sold before, and they are selling more and more every day.

Of what did the program consist? If there is anything in the bag that we did not pull out and try, I do not know what it was. If you can give us a new idea, we will try it. We do not mind borrowing, stealing or trying to originate them.

We increased power sales on a grand scale. We promoted it from every point of view we could think of: in industrial heating, in industrial use of power, in industrial lighting and in air conditioning. We also went into the home lighting field. Georgia is operating a crew of eighty-five home economists who are paying their own way in the revenue which they bring in. Alabama and Tennessee are likewise going in for home lighting, on a scheme slightly different from ours. Commercial lighting has been expanded over a thousand per cent. Home Service has been increased to the point where a range or a refrigerator is not in the home of one of our customers for more than a week before a home economist calls to show the consumer how to use it and how to secure best results.

The industrial department has been encouraged. The merchandise department has been expanded to the point where we have one salesman or selling

employee for every 740 residential customers, and the salesman is making more money today than he was when we had only one salesman for every 2000 customers. The salesmen are self-supporting, and they are contributing a share to the new business expenses as a credit. We can throw in another fifty salesmen in the merchandising group, and still keep those fifty in the marginal territories self-sustaining.

You may say, "That is all very fine. You have just spent a whole lot of money. What did you get for it?" Let's look at what we got.

In 1933 the Tennessee Electric Power Company had a consumption among residential consumers of 612 kilowatt-hours per customer year. By 1935, they jumped that figure in two years to 960, which is 348 kilowatt-hours increase per customer year. Alabama had 793 kwhr in 1933, and they jumped their consumption to 990 kwhr or an increase of 197 kwhr per residential customer per year. Wilson Dam, in case you do not know it, is located in the northern part of the State of Alabama. The Georgia Power Company had 795 kilowatt-hours per residential customer in 1933, and on March 1 of this year we had jumped it to 1060, an increase of 265 kwhr per customer year.

What happened to the revenue? There had been a rate cut in the meantime, remember. In 1934 when the rate cut became effective Tennessee had an income per residential customer of $31.96. In 1935, they had an income per residential customer of $35.03. They increased their revenue per residential customer $3.07. Alabama had a revenue per customer of $33.40 in 1934, and in 1935 they increased their revenue to $36.10. Georgia had a revenue in 1934 of $35.16, and in 1935 they increased their revenue to $37.67.

The "objective" or "inducement" rates of the three companies in the field are identical. The difference in the revenue per customer grows out of slightly different methods used by the three companies in developing their business. While the methods are fundamentally the same, we have not made the mistake, in these three southern companies, of trying to boilerplate the sales job. Mr. Stanley runs his sales end as he thinks it ought to be run. Mr. Ashmead runs his campaigns as he thinks they should be run and ought to fit in, and we run ours on our own.

So you see, the measures which are usually applied to determine whether a thing is workable or not indicate that our plan is workable, and if it is workable in that area it can be made to work anywhere. Please consider 115,000 square miles of territory, with total retail sales per capita in 1931 in Alabama of $198; in Georgia of $212; and in Tennessee of $248, and compare them with figures for Massachusetts of $484; of Michigan, $461; of Nebraska, $435; of Montana, $445; and of California and New York in the $600 class.

Consider, too, another point. In our area the customer density per square mile of territory served is 2.6 customers to the square mile. For one mile of pole line distribution, including what metropolitan centers we have (or what we call metropolitan centers), there are approximately fifteen to eighteen customers per mile of pole line for the entire area. Just shut your eyes and visualize that situation. You can't go from door to door to do your selling.

Salesman X sells Mrs. Smith a refrigerator. He then gets into his car and he may ride five, six or eight miles before he sells the next customer. It makes for difficulties: difficulties in selling and in usage; it makes for difficulties in servicing and the like, and for difficulties in cashing in on the well-known psychology of "keeping up with the Joneses." It isn't very hard to sell an electric range next door to the home in which you have just sold a brand-new shiny one, but I am telling you that down in our territory it is the very devil itself to sell one six miles away.

I am not going into the details of all our selling plans. I don't think there is anything particularly wonderful about the program or about the campaigns we have run. There is nothing that any one of you commercial men here could not sit down and hash out yourselves, probably better than we have done it. The results flow from a combination of factors: a faith in the business; imagination in the treatment of that business; a tenacity by the men in the field in sticking to it; a bold long-range planning; and the *courage and confidence of the management to see this thing through and give us a shot at it unhampered by old standards and rules of utility selling.*

That is all it really amounts to. There isn't a commercial man in this room who, given the opportunity, could not set up a sales plan just as good as or better than the one we have set up.

Remember one thing, however. The job can't be done in a day. Habit is a peculiar thing. You can't make a man adopt a new habit overnight. You have to work on him a little while and get him into the spirit of the thing. It is just like teaching a little dog to do tricks. He won't learn on the first attempt. It has to be done over and over again, and it takes time.

In our territory we have tried out one thing which I think is a little unique. Some of you may wish to hear about it. As I have stated, we have a wide area. Georgia's area is 59,000 square miles. You could put all of New England in our state and still have room in which to run around. We were having a rather tough time building up the residential load in that area, and we had been giving a great deal of thought to ways and means of accelerating our rate of growth.

One day a well-known Government representative rushed into print with a news story of the wonderful rate of growth experienced by the little town of Tupelo, Miss. Being in the area, we had letters from other sections asking for facts and information on this seemingly rapid growth. Mr. Wendell L. Willkie, president of the Commonwealth and Southern Corporation, who has been generous to the extreme in his treatment of our Southern companies, and who has displayed great courage and imagination in meeting the TVA situation, and has been most willing for these Southern companies to take chances in new fields of endeavor looking toward increasing the rate of growth, said to me one day, "Charlie, this news item regarding Tupelo is supposed to put us in an awful light." I replied, "Yes, on its face it does seem to, but if that puts us in an awful light, we can put Tupelo in a lot worse one, for we have many towns in Georgia whose use of the service by residential consumers will make Tupelo look like the proverbial 30 cents." "Well," he said, "You may know it, but why don't we tell others?"

Out of that question grew the germ of an idea which developed into what we now call the "Home Town Contest." We took the idea to Mr. Willkie and sold him on setting up $10,000 in prize money for the contest. Then we started out to shape up the contest. We announced it to the public on last Oct. 1. The basis of the contest is this: The consumption of each incorporated town on the system with more than 25 customers (there are 270 such towns) was broken down into kilowatt-hour consumption per residential customer. Then

for each kilowatt-hour of residential consumption they were given one point. For each kilowatt-hour of *increased* consumption they will be given 10 points. When the end of the year comes around, the town that has increased its total the greatest number of points is the prize winner.

We took the towns and broke them into four groups, the groups being gaged by the size of the towns, and divided the prize money into four parts. We also put up a so-called "sweepstakes prize," so that no town would get pretty well up to the top and then be shouldered out by some "dark horse."

We started that contest in October, without adding a single employee to the company's rolls. It got under way slowly. In November it began to take hold. In December we received valuable editorial and news publicity on it in the county newspapers and in the larger city newspapers. Their cooperation has been amazing.

Christmas over, the customers in the towns themselves got down to bed-rock and really got to thinking about the idea. We took a man in each division off of employee promotion work and turned him loose on the Home Town Contest for a period of ninety days, in order to get the Contest organized in each of these towns.

Let's see what has already happened.

We have a little town way down in southeast Georgia called "Woodbine." Any one of you people of affluence who has driven through Georgia to Florida has passed through it. The city council of Woodbine were so enthusiastic over this contest that it held a council meeting and passed an appropriation to pay the down payment on any automatic water heater bought by a customer in the city of Woodbine. The result of this action was that in 30 days' time over 40 per cent of the entire customer group in Woodbine had been sold water heaters.

Woodbine wasn't satisfied with that, as a neighboring town was pushing them quite hard for first place. Just before I left Atlanta I heard that the town had had another council meeting. They had our man come into town to ascertain what could be done to help the town along. Our man didn't know. Finally somebody had the bright idea that the customers might use more light. Someone said that there was plenty of light already, but the mayor declared, "It looks to me if you fellows would put a lamp on the front porch and burn it all night, it might help some." Whereupon, the town council approved a resolution authorizing the city clerk to pay the additional charge to every customer in Woodbine who put a hundred-watt lamp on his porch and who burned it all night. So today there is scarcely a single domestic user in the city of Woodbine who is not burning a hundred-watt lamp on his porch all night long. If you don't believe me, go down and look. The first night they turned the lights on the people from the backwoods came to town to see the fire. That is the kind of town boosters to have around.

The city of Decatur is a suburb of Atlanta. In fact, it is like these towns out here; you can't tell where one begins and the other ends. Nevertheless, Decatur is a separate municipality.

It is a hard job to put a plan like this over in a big town. It doesn't take there like it does in a small town. However, we succeeded in getting the Women's Club in Decatur interested. Now every city water bill from the municipal plant goes out with a stamp on it: "Help the Decatur Public Library win $1,000 in the Home Town Contest," and at Christmas time they added, "Give Something Electrical for Christmas."

Carrollton, Georgia, a town of about 6000 people, in the western part of the state, has a Parent-Teachers' Association and a branch of the Federated Women's Clubs. The clubs had some controversy on who would sponsor the contest and unfortunately they brought the question to us. We suggested that they both sponsor it, that they go back and print some prospect cards to be distributed to all customers in town and whenever a customer bought anything we would give credit to the proper club for the purchase. At the end of the year the club having done the best job, as shown by the prospect cards, would be the winner of the prize, the prize going solely for civic improvement. The P.-T.A.'s have some blue cards, and the Women's Clubs have some red cards. They are pushing the customers of the company in Carrollton to hurry up and buy, building the household load by putting current-consuming devices upon our lines.

Wadley, Georgia, a town that has not done anything spectacular in years, has become interested in the contest, and decided to fix up a slogan which was to be sent out with the municipal water bills. Everyone who advertised in the local paper was asked to devote a portion of his copy to the slogan. Here on the back of the water bill is printed: "S.O.S. Calling All Citizens. Help Wadley win the $2,500 by increasing your consumption of electricity." The same slogan goes out with the bills of many local merchants and appears in their advertisements in the local newspapers.

So it goes. I merely mention this contest to show that, while the campaigns of the three southern companies are more or less conventional in their treatment of our problem, we have been driven to unique methods of developing the business. For further example, Mr. Ashmead in Tennessee took a low-priced iron. I think he sold about 25,000 of those irons in the period of a year and a half, a large majority of them going into the low-use customer group.

Georgia took a similar iron and sold it for $2.50 and we sold 15,000 of them in six weeks.

I think Mr. Ashmead has decreased the low usage group more rapidly than has Georgia, and the effect of their work is well illustrated. For example, in Tennessee, in 1934, 18 per cent of the customers were in the minimum class; that is, the $1 minimum. In January, 1936, they had reduced it to 8.4 per cent, or cut it in half.

In Alabama in 1934, 18 per cent of their customers were in the minimum group, and this percentage is now down to 14. In Georgia, in 1927 (and I go back to 1927 because I happen to have the records on my own company), 28 per cent of our customers were in the minimum group and 65 per cent of all our residential customers used less than 30 kwhr per month. The minimum bill customers have been reduced to 11 per cent, or, roughly, cut to one-third, and only 38 per cent of the whole now use less than 30 kwhr per month. This in spite of the addition of 26,000 new customers, the large majority of which were small users.

Not only did this happen, but the shift from group to group, always into the higher group, is a continuous result. Remember, the little fellow is tomorrow's large user.

You know, when you get this selling plan clicking in your company, it isn't going to be just the sales department's job—it is going to be the job of everybody from the president down to the janitor. We are having a little dinner in Atlanta next week for a club formed in one of our divisions. It is called the "Hundred Percent Club." At that dinner there are going to be exactly 166 employees, 83 per cent of all the em-

(*Continued on page* 152)

New Approaches to the Electrical Market

By C. E. Wilson

Vice-President, General Electric Company

An address before the Third Annual Sales Conference, Edison Electric Institute, Edgewater Beach Hotel, Chicago, March 25 and 26, 1936.

I HAVE been asked to suggest for consideration new approaches to the electrical market, but in addressing an aggregation of men from every part of the country who are in intimate daily contact with every phase of the electrical market, it seems to me that it would be presumptuous to assume that I could bring to you anything really new. And even though I could, I am rather inclined to think that more mutual value might be secured through following-through on the approaches already made—introducing in this follow-through whatever novelty comes to hand which is consistent with and contributory to the main objective of complete electrical service.

Speaking in golf terms, the distance from where we are today up to complete electrical service, is a long hole. We have made our drive and perhaps a good wood shot. Now and then we have landed in the rough, but we are in a position to follow through with some good iron shots as we approach the green for our final putt into the cup of complete electrical service.

To win in this game, we must not only skillfully follow through with our club on each stroke, but in orderly fashion, we must also follow through on each successive stroke with the club appropriate to the condition.

In urging a follow-through on approaches already made to the electrical market, I, as a manufacturer, might very naturally deal with direct commercial considerations.

Since utilities generally have already made a substantial approach in promoting wiring in terms of an adequate number of outlets, it would seem reasonable to encourage you to continue that activity by enlarging the scope of adequate wiring promotion to include adequate current carrying capacity in the conductors behind the walls and convenient individual circuit control, by means of circuit breakers. I might even succumb to the temptation to encourage the promotion of the recently developed radial wiring system, which not only embraces these additional features but also gives electrical contractors a much needed convenience unit to sell, rather than a conglomerate assortment of wiring materials—but to reserve my time for something which I consider more important, I will refrain.

MR. WILSON

Then, too, I might consume my entire time in stressing the importance and desirability of intensively attacking the vast market now using non-automatic heating devices, with a view to converting these millions of users to modern automatic heating appliances. And it might be very reasonably argued that a campaign having this purpose would serve not only to sell a great quantity of heating appliances, but would also help in promoting a broader appreciation of automatic electric service which, in turn, would cultivate a receptivity for larger automatic appliances consuming more kilowatt hours.

The importance and value of periodic and intensive utility campaigns on home laundry equipment, refrigerators, ranges, dishwashers, cleaners and other labor saving devices could very appropriately engage our attention for much more time than we now have at our disposal.

Then, there is radio, the Topsy of the electrical industry which has grown to consume an estimated billion and a half kilowatt hours a year, with relatively little encouragement or stabilizing influence from the utility industry which profitably supplies this huge volume of energy. Here is a commodity of vast current consuming potentialities and genuine public service which in the process of marketing could be very substantially benefited by the steadying influence which utilities are in a position to give; and thought on that subject alone certainly is needed in our mutual interest.

The Kitchen Modernization activity which utilities generally are so splendidly organizing to support, offers another topic, not only for commercial consideration but for congratulation. This activity is a real, new approach to the electrical market, consistent with the main objective of complete electrical service.

Again as a tangible and interesting expression of complete electrical service, detailed consideration might be given to the new American home idea —another new approach to the electrical market which, with the local cooperation of utilities, offers tremendous possibilities in concentrating public attention upon the manifold services of electricity in the home.

A discussion of any or all of the topics just enumerated was probably in the minds of those who invited me to speak, but I hope they will not be disappointed if, with these passing and inadequate references to the current-consuming commodities the manufacturer, the distributor, the dealer and the contractor has to sell, I make the principal objective of my remarks to you the consideration of what you primarily have to sell, namely, the electrical energy these products consume. I make this the principal consideration because I believe that a really broad conception of electrical marketing should embrace ways and means of promoting every element, individually and collectively, which goes to make up complete electrical service; and in such a broad conception, electrical energy service is the one indispensable element;

transcending, if you will, the service provided by wiring, lamps, lighting equipment and appliances.

Specifically, what I am suggesting is that utility companies continue to give more and more thought and more and more definite well-organized promotion to the problem of keeping their customers constantly aware of the public service they are providing for so little. This suggestion arises from the feeling that the public at large is still indifferent or unfriendly to the utility companies, not alone because of unfortunate and unjustified political attack, but more particularly because the public at large is not constantly conscious of the dependable and varied services you keep at their beck and call day and night.

Just how deserving the utility is of public friendliness has been most strikingly emphasized only recently, when floods ravaged the eastern section of the country and deprived hundreds of communities of electrical service. In the past, such a condition has been theoretically considered. Last week, it became a practical fact. When, by an act of God, electrical service was stopped a substantial part of the mechanism of living ceased to function. In thousands of homes there was no light, no water, no communication. The merchant was unable to sell his wares through lack of electrical service. High buildings were rendered impracticable through the suspension of elevator service. Industry was paralyzed—workers were deprived of a means of livelihood. One could go on almost indefinitely cataloging the restrictions and deprivations resulting from the suspension of electrical service. And yet, the local service companies which were thus proved to be almost indispensable in carrying on an orderly existence were perhaps in many cases the object of an unfriendly attitude.

So I say to you that, in my judgment, the most constructive approach, though not a new one by any means, the utility can make to the electrical market is to sell its service to the public and through the development of a consciousness of this service, create the friendly attitude it so well deserves.

Throughout the United States there are many utility companies who include the words "public service" as a part of their name. As has been so recently demonstrated, they are, in fact, great institutions of public service providing an indispensable element of better living to society at large. But, as I have already suggested, too often that society thinks objectively of the utility company only upon receipt of their bill, and then unpleasantly. Considering only the home where the greatest opportunity for the development of friendship exists, that bill states that so many kilowatt hours were delivered within a stated period at so much a kilowatt hour, and the cost was so much. You know and I know that that was not what was delivered. What this public service company delivered was the energy which provided music, entertainment, education, news, health, sunshine, cleanliness, heat, light, better sight, properly preserved and prepared foods, correct time, release from drudgery, and many other contributions to comfort, convenience, leisure and better living. Yet, because the utility interpreted this wide range of service in terms of kilowatt hours and cost, the recipient of that bill accepted its interpretation and reluctantly paid for something he never saw and didn't want—a specified number of kilowatt hours.

Of course, insofar as bills are concerned, it would be fantastic to assume that the utility could itemize each of the services it delivered and the cost thereof, and yet it is my judgment that utilities would do well to develop ways of dramatizing their services by other means in order that their bills may be imaginatively interpreted in terms of a variety of services.

One of the most helpful influences in the industry has been the wholehearted cooperation manufacturers, distributors, dealers and contractors have received from the utilities in actively promoting the safety, comfort and convenience of adequate wiring and individual appliances. To a degree they have been right in this feeling and, from the standpoint of a manufacturer, I would not like to see this promotional cooperation diminish. Nevertheless, the obvious fact remains that wiring systems, refrigerators, ranges, radio receivers, home laundry equipment and all of the many other appliances in daily use would be inanimate, useless things without the electrical energy provided by the utility. Therefore, why should not the utility in promoting these instruments of service also promote the appreciation they so richly deserve of the indispensability of the energy force which makes these instruments serviceable?

Now, I am not proposing that utilities undertake to sell kilowatt hours as such, but it does seem to me that they may intensify their efforts to sell the constancy of their service, its uniformity, its ready availability in any quantity, as well as the specific consequences of its utilization in energizing wiring systems, lamps, lighting equipment and appliances.

By way of illustration, we may turn to the automotive industry. Automobile manufacturers' appeal for public interest, friendly consideration and patronage by consistently pointing out the comfort and convenience of the automobile (the appliance, if you will) they have to sell. In this respect, the electrical manufacturing industry may not suffer from comparison; on the other hand, however, the gasoline producers —the producers of the automotive energy force—persistently impress upon the public mind the fact that their energy commodity provides quick starting, fast pickup, speed and economy—all of the advantages claimed by the automobile manufacturer for the car itself.

Likewise, in the promotion of electrical commodities and electrical energy, every claim made by the manufacturer can be as fairly made by the utility.

As the situation stands today, thousands of people may be heard to say, "I couldn't get along without my refrigerator; or my radio; or my washer." Similar remarks are made with respect to almost every material commodity giving service in the home. Yet it is probable that you have never heard anybody say, "I couldn't get along without electric service"; in spite of the obvious fact that in terms of indispensability, that ranks first. There is an axiom that "nothing should be taken for granted" and it is my feeling that this truth applies with particular force in connection with electric service. It is taken too much for granted, and that is the condition I urge you to continue with even greater effort to correct.

Having made that suggestion, I might reasonably be asked to suggest how it might be done. In part, I have already done that in stating that any claim made by a manufacturer of an electrical commodity, regarding the service that commodity can supply, can be paralleled by the utility. Since the sales features of manufacturers' products are

customarily translated into terms of consumer service and interest by advertising, it may be in order to suggest that the Edison Electric Institute, as a national organization, give consideration to the appointment of a Cooperation Committee which could be charged with responsibility for coordinating the promotional themes of both manufacturers and utilities—themes which in every case would be expressed in terms of public service. Such an agency as your national body could develop a program for both national and local promotion, having the common objective of making friends through a consciousness of your friendly service.

Presumably such a program would give to the utility due credit for cleanliness, economy and safety in the preparation and preservation of foods; for the performance of the arduous task of washing and ironing; for bringing both warmth and cool comfort to the home, as the seasons require; for bringing summer sunshine in the winter months; for safeguarding sight; for protection in the night; for correct time; for the protection of health.

Imaginatively, I can picture the utility industry dramatically telling their millions of customers that they brought the Philharmonic Orchestra to their living rooms last Sunday afternoon; that they washed and ironed their clothes last Monday morning; that they frightened away the intruder in the night; that they made yesterday's dessert and iced last night's cocktail.

In similar vein, one can well imagine the friendship which might be engendered in the minds of people who are eternally conscious of your service contribution to commercial and industrial life. Let merchants know that your energy helps to sell their goods. Let manufacturers know that you help to cut their costs. Let the world at large know that your help in reducing costs make it possible for them to buy better goods for less money. Continue to dramatize, advertise and merchandise your real public service and reap the reward of real public appreciation and friendship, grounded on the foundation of public understanding. With that approach to the electrical market, you will have followed through to the logical end in clearing the path to complete electrical service.

SALES—ELECTRIC REFRIGERATORS

(Household Models Only)

MONTH OF FEBRUARY AND FIRST TWO MONTHS OF 1936-1935

	Month of February, 1936	Month of February, 1935	Month of January, 1936	First Two Months, 1936	First Two Months, 1935
Total United States	*179,056*	*121,526*	*119,764*	*298,820*	*218,951*
Maine	1,007	563	245	1,252	939
New Hampshire	990	389	241	1,231	610
Vermont	576	282	119	695	374
Massachusetts	8,479	5,407	4,112	12,591	8,838
Rhode Island	1,370	658	434	1,804	1,057
Connecticut	3,381	2,167	1,210	4,591	2,955
Total New England	15,803	9,466	6,361	22,164	14,773
New York	19,940	11,626	11,056	30,996	20,328
New Jersey	8,269	3,888	5,100	13,369	7,110
Pennsylvania	12,895	10,814	12,040	24,935	16,026
Total Middle Atlantic	41,104	26,328	28,196	69,300	43,464
Ohio	9,616	7,411	8,009	17,625	16,022
Indiana	4,658	3,270	4,352	9,010	6,232
Illinois	11,521	7,827	8,169	19,690	15,043
Michigan	7,811	6,018	5,391	13,202	10,477
Wisconsin	2,910	2,057	2,281	5,191	3,718
Total East North Central	36,516	26,583	28,202	64,718	51,492
Minnesota	3,451	2,558	1,640	5,091	4,038
Iowa	3,111	2,932	1,889	5,000	4,791
Missouri	4,871	4,413	3,870	8,741	9,767
North Dakota	684	345	187	871	520
South Dakota	831	400	337	1,168	897
Nebraska	1,555	1,609	1,364	2,919	3,802
Kansas	2,001	2,021	1,948	3,949	3,463
Total West North Central	16,504	14,278	11,235	27,739	27,278
Delaware	244	318	271	515	462
Maryland	2,215	1,744	1,129	3,344	2,980
District of Columbia	1,345	605	1,170	2,515	1,524
Virginia	2,821	2,025	1,627	4,448	3,703
West Virginia	2,148	1,453	1,081	3,229	2,737
North Carolina	3,864	1,668	1,399	5,263	3,217
South Carolina	1,644	647	743	2,387	1,259
Georgia	2,955	1,635	1,190	4,145	4,315
Florida	2,552	1,140	1,786	4,338	3,072
Total South Atlantic	19,788	11,235	10,396	30,184	23,269
Kentucky	2,381	1,182	1,685	4,066	2,392
Tennessee	2,351	2,140	1,800	4,151	3,425
Alabama	1,795	1,931	1,184	2,979	2,943
Mississippi	827	478	619	1,446	731
Total East South Central	7,354	5,731	5,288	12,642	9,491
Arkansas	1,355	938	1,062	2,417	1,573
Louisiana	2,224	1,338	1,510	3,734	2,373
Oklahoma	2,403	2,073	2,305	4,708	3,409
Texas	7,253	7,086	5,676	12,929	11,264
Total West South Central	13,235	11,435	10,553	23,788	18,619
Montana	990	573	487	1,477	832
Idaho	1,099	595	567	1,666	1,203
Wyoming	329	229	142	471	397
Colorado	1,274	1,095	1,005	2,279	2,370
New Mexico	442	251	251	693	559
Arizona	969	433	491	1,460	1,033
Utah	2,003	560	435	2,438	1,022
Nevada	337	109	188	525	243
Total Mountain	7,443	3,845	3,566	11,009	7,659
Washington	3,103	2,281	3,722	6,825	4,266
Oregon	1,558	1,336	2,435	3,993	3,206
California	16,648	9,008	9,810	26,458	15,434
Total Pacific	21,309	12,625	15,967	37,276	22,906

Figures based on report by the National Electric Manufacturers Association E.E.I. 3-31-36

Business Development In California

By R. C. McFadden

New Business Manager, Southern California Edison Company, Ltd., Los Angeles, California

An address before the Third Annual Sales Conference, Edison Electric Institute, Edgewater Beach Hotel, Chicago, March 25 and 26, 1936.

IT is my privilege to attend this Conference as a representative from the Pacific Coast Electrical Association, this Association being the electrical industry organization of California. While I am here primarily for the purpose of listening so that I can take back to California for the benefit of our Association the many new ideas which will undoubtedly result from this meeting, Mr. Greenwood has requested that I report briefly on electrical matters pertaining to the West Coast.

I do not feel that I have a great deal to tell you of what we have accomplished in California that will be particularly beneficial to you. You know, even in California, when Utility men from different parts of the State get together, the remark that "such a plan may be all right in your territory, but it won't work with us because our conditions are different"—is often heard, and strange as it may seem, such is often actually the case, so if plans and methods of operation must be varied even in California to meet local conditions, is it any wonder then that the things we do in all probability would not work at all if transplanted to this section. It has been my observation, however, that many of the plans for business development which originate in the East are applicable and do work in California.

We have our problems, it is true, and many of these problems are identical with yours. For example: We are concerned about surplus power; Boulder Dam; the obtaining of higher load factor on existing plants; increasing the kilowatt hour consumption of our domestic consumers; the usual municipal and Federal ownership agitation; competition for business with steam, natural gas, gasoline and Diesel engines. Engine competition is not being confined to industry alone, but is invading virtually all classes of consumers whom we serve and very recently has appeared in rather violent form among our larger commercial lighting consumers in the form of engine generators.

There is one industry problem to which a great deal of national publicity has been given and with which we are not particularly burdened and that is rural extensions, and the absence of this problem is not due to that fact that we are any smarter than the rest of the country and have found the solution, but the problem simply solved itself because "conditions are different with us."

Many of you, undoubtedly, have been to California, but for the benefit of those who have not, I would say that to a large extent California by nature is an arid country. South of the central part of the State there are no rivers whose water reaches the sea, except in time of flood conditions. Without water, within one year the State would return to the jack-rabbits and Indians from whom it was taken. As there is comparatively little surface water for irrigation, water must be either imported or pumped, and it is the furnishing of power for the pumping of water that has carried the power lines in California to almost every nook and corner of that State. If there are any sections where water is not available, then you will find no one living there; hence, no rural extension problem.

The electric pumping load served by the Utilities of California totals 780,000 hp and represents to the Utilities an annual revenue of $16,000,000, so you see why our Rural Electric extension problem has not been troublesome.

Our irrigation pumping plants will vary in connected loads from about 5 hp to 350 hp in individual units. Of course, the use is somewhat seasonal, the average use period varying from 5 to 7 months. This situation does give us the problem of building other forms of farm load to fill in this load curve valley, and we are endeavoring to do this through the sale of the complete electric home, air conditioning, and air heating. Most of the California Utilities have established Rural Electrification Departments whose function it is to carry this story of electric service in all its forms to our agricultural and rural consumers. Carefully trained men are employed for this work, preference being given to those who have agricultural college training behind them and to men who have had farm experience. Particular stress is being placed on all forms of dairy loads, electric brooding, incubation, frost protection, soil heating, both in open fields and in hot-beds, the use of light for pest control—in fact, the sale of electric energy for all purposes that will prove beneficial to our farm customers. One Utility has just completed the preparation of a motion picture depicting the electrification of the poultry industry in its territory.

We have a very active Committee on the Relationship of Electricity to Agriculture, and the findings of this Committee and its activities have been of unquestioned benefit to us. If there are any sections represented here that do not have such an organization, I urge that you take the necessary steps that will lead to the establishment of such a Committee.

We, also, have had a depression in California. Our farmers have had their economic troubles the same as yours They have been hard-pressed to keep going and stay solvent. It is in times such as these that people who are apparently sinking below the surface are willing to grasp at any floating straw that offers apparent support. We have thousands of motor-driven pumping plants, and I believe that our competitors, the natural gas distributing companies, the gas engine and Diesel engine salesmen, have, during the past few years, submitted proposals to every one of them—at least it has seemed that way to me.

We have a great abundance of cheap, natural gas and, more particularly, in Southern California the distribution systems of the gas companies generally parallel the systems of the electric utilities so, at least in the case of my company, which, incidentally, is not a combination company, that competitive threat is always with us. The stress of the times has made many power consumers particularly susceptible to the

siren song of "Payment out of Savings." This most fallacious theory has led many a farmer into making an unwise investment in expensive engine equipment only to find to his sorrow that by the time he has paid for the engine through the alleged "savings," the engine is worn out. He invariably reinstalls the electric motor but in the meantime we have lost the load.

Due to the vast increase in the amount of water being pumped because of a series of comparatively dry years and new acreage, underground water levels have declined steadily. In spite of the fact that power rates have also declined, the cost of pumped water has in many cases shown a decided increase during these years, so for this reason this class of our base load has been very susceptible to attack.

We have attempted to help the farmer solve this problem by teaching water conservation; its more intelligent use; urging the construction of reservoirs; and in my opinion, the most important—carrying on a continuous educational campaign on the need for the maintenance of high pump efficiencies. Virtually all of the California Utilities maintain staffs of testing engineers who conduct hydraulic tests on pumping plants, and as a result of these tests, plant defects are pointed out, together with the saving in power costs if the efficiency is improved. I would estimate that the Utilities are testing, annually, approximately 5000 plants. There was a time not so long ago when 50 per cent overall efficiency was considered to be fairly high, but today efficiencies of 65 and 70 per cent are not at all uncommon. One Utility is going to the extent of loaning these farmers the necessary money to make the recommended plant repairs.

The Petroleum Industry is another industry that has presented us with some real problems during the past few years. There was a time, in spite of the fact that millions of cubic feet of gas were being daily blown to the air, that it looked as if electric power would be the predominating form of power used throughout our oil fields. However, with government curtailment of production and with the accompanying forced economies, a great deal of this load was lost to natural gas engines. As in all known natural gas fields, our field gas pressures are declining and this, together with the fact that the industrial, commercial and residential market for natural gas is again increasing, we are beginning to recover much of this lost business and get some new, as well. Also, the operators are beginning to find that the 20-year life of gas engines so blithely promised by the engine salesmen is far from being realized. Our experience with Diesel engines to date at least indicates that their average useful life does not exceed five years.

For many years California Utilities have advocated lighting the highways as a means of making highways a safe place to drive. The tremendous number of miles with the attendant expense of installation and maintenance has proved to be an unsurmountable obstacle to that program, however, it being a proven fact that with proper lighting, driving hazards are reduced, we are now approaching the problem from a new angle. As a starting point, a survey was undertaken and is now complete of all the so-called "danger" spots on the highways. We have every assurance that proper lighting for such locations will be approved, and when this has been accomplished, a big step in the right direction will have been made. The light which is being used for this purpose is the 10,000 lumen Sodium Vapor Lamp with which you are all doubtless familiar.

You have heard of Boulder Dam and have wondered what its effect will be on Southern California. I shall attempt to briefly describe it to you.

In the first place, it is a truly tremendous structure; one that rises 726 feet from the stream bed in a canyon that is 350 feet wide at the base and 1244 feet at the dam crest. This dam creates a reservoir that extends for approximately 115 miles up the Colorado River, and will impound 30½ million acre feet of water. The objects of this project are threefold: Flood Control; Water Storage; and Power. The installed generating capacity will be 1,835,000 hp. It is estimated that the power output will be 5,880,000,000 kwhr annually, and of this amount 4,330,000,000 kwhr will be firm power. On this project the Government will not generate electricity but sells the privilege of using the falling water to the contracting agencies on a basis of 1.63 mills per kwhr for firm power and .5 mill for secondary power.

Before the project was even started, all of the power was under contract, or assignment, the contracting parties being the State of Nevada 18 per cent; State of Arizona 18 per cent; Metropolitan Water District 36 per cent; the cities of Los Angeles, Pasadena, Glendale, and Burbank 19 per cent; Southern California Edison Company, Ltd. 7.2 per cent; the Southern Sierras Power Company and the Los Angeles Gas & Electric Company 1.8 per cent.

Of course, most of these contracts were entered into by somewhat optimistic purchasers in the pre-depression era and, with this power only a few months away, a few of them are beginning to have some real headaches as they have larger commitments than can apparently be used. It is this fact, however, that is lending a great stimulus to general loadbuilding activities in the southern part of our State and many of us are beginning to feel that with the tremendous amount of national publicity being given to the "Electrical Age," "Electrified Home," "Electrified Agriculture," and electrified industry in general, that a market is being created that can and will absorb this power supply without seriously affecting the existing power market.

You will note that the major allotment of 36 per cent of the Boulder Dam power is to the Metropolitan Water District. That agency is at the present time constructing an aqueduct from the Colorado River to Los Angeles and other Southern California cities. The District's power will be used in lifting the water some 1700 feet from the gravity canals over a small mountain range where it will again flow mostly by gravity to the cities in Southern California who have contracted for the water.

At the present time it seems to be the intention of the state of Nevada to dispose of their 18 per cent of power by selling it practically at cost to mining industries in that State.

The total allotment to the Southern California Edison Company of 7.2 per cent is taken under the following conditions:

No power from Boulder Dam is to be taken by the company until three years after the first delivery to the City of Los Angeles. Then it will take 55 per cent the first year; 70 per cent the second; 85 per cent the third; and not 100 per cent until the fourth year. Hence, it will be 7 years from late this fall until the Edison Company is obliged to take its full allotment, which ultimately may amount to about 900,000,000 kilowatt hours per year, provided both Arizona and Nevada do not use their allotments. Last year that company generated 3½ times that amount of current and with normal conditions existing, the company does not consider disposal of its share of the power much of a problem. In fact,

a vigorous selling campaign inaugurated three years ago has already more than made up the loss the Edison Company will sustain in losing the sale of wholesale power to the City of Los Angeles.

Referring to one of my original statements that even in California no single method of loadbuilding is being followed by all Utilities, it might be of interest to you to know something of the various merchandising plans being carried out.

There are in the State about six electric public utilities along with three municipal utilities having their own generating plants, and of the latter group one serves only industrial consumers. In addition to these there are several municipal systems operating on purchased power. Of the six private utilities, three do no direct merchandising whatever, one carries on a complete retail merchandising activity, and two carry on both dealer cooperative and direct merchandising programs. I am not prepared to say which method is the most effective, but believe that each Utility must arrive at the proper answer to that question itself as again, undoubtedly, local conditions play an important part in the proper anwser. However, it is unquestionably the trend in Southern California to establish merchandising policies that are built around quite complete dealer cooperation. The experience of my Company at least more or less fully justifies this method; however, it has both advantages and disadvantages.

The various Utilities in California have just recently announced their Sales Programs for 1936 and their objectives may be of interest to you. The figures I am about to quote represent State totals:

Agricultural Power	73,000 hp
Industrial Power	207,000 hp
Oil Industry Power	26,000 hp
Industrial Heating	9,000 kw
Commercial Cooking	6,000 kw
Commercial and Industrial Lighting	55,000 kw
Number of Electric Ranges	15,000
Number of Electric Water Heaters	9,000
Number of Electric Refrigerators	100,000

As a prospect list on which to work, California offers 1,500,000 domestic consumers; 81,000 farms; 272,000 commercial establishments; and 38,000 industrial consumers. The present connected load in the State amounts to 7,000,000 hp, and 9,314,000,000 kwhr were sold in 1935. Already installed, we have a total of 2,880,000 kilowatts of generating capacity; ample supplies of natural gas and oil for steam generation; with Boulder Dam, a more than adequate supply of hydro power; with the Metropolitan Aqueduct which brings water from the Colorado River to Southern California, near completion providing an abundance of that vital necessity —water; with an already rapidly growing industrial center indicated by the fact that four of the largest of the nation's automobile tire manufacturers have plants there, as well as six of the major automobile companies, together with a climate that needs no eulogy from me, I believe that we will struggle through.

All Coast companies have endeavored to the best of their ability to tie in with and promote the objectives of the Edison Electric Institute's National Commercial Sales Campaigns, and all have done so to at least our own satisfaction.

I have in mind the domestic refrigeration activity, the campaign on water pressure systems, the electric range, the all-electric kitchen campaign, home lighting, the "Better Light-Better Sight" campaign, and others.

In connection with our "Better Light-Better Sight" movement, an independent organization known as The Western Institute of Light and Vision has already accomplished some outstanding results in coordinating the interests of oculists, optometrists, utilities, and public authorities in a more complete realization of the need for better lighting. This Institute was organized approximately 8 months ago, and during the 4-month period since it has been actively under way, a staff of 58 speakers has been secured and over 600 talks have been given to approximately 8000 people. Three radio broadcasts have been conducted, and arrangements have been completed for a weekly broadcast during the balance of this year.

The first step of the Institute was the preparation and publication of the booklet "Seeing," and to date approximately 300,000 of these booklets have been distributed, and, incidentally, of this number the Brooklyn Edison Company has taken 101,000 copies, and the Detroit Edison Company 22,000 copies. A permanent lighting exhibit has been established in the Los Angeles Architects Building, and test lighting installations are being made in a number of our schools. In addition, school authorities have already authorized the Institute to make a complete survey of the lighting conditions in all of the schools themselves.

In carrying this campaign on to our domestic consumers, the Coast Utilities are using many different methods. One company is employing a staff of women who call upon their domestic consumers in a purely promotional capacity, selling no lighting equipment. Another company has used women on this work doing direct selling. Another company has found that men have proved very successful.

When equipment is sold, it usually consists of the kitchen lighting unit, "pin-it-up" lamps, table and floor reflector lamps—all being sold on easy terms. One Utility has undertaken the rather unusual method of supplementing this activity through the use of what it calls the "appliance trailer." This "trailer" is a miniature workshop as well as a stockroom for lighting equipment. Through the use of these trailers it is planned to cover, house by house, the entire territory served. The trailer personnel consists of an expert appliance repair man, who does not leave the car, together with four men, all in uniform, who carry on the consumer-contact, the method of operation being to locate the trailer in the particular section to be covered and with it as a working base the four contact men call on all the homes in that vicinity, offering to make free repairs on all heating appliances and portable lamps that may be out of order. The number of appliances and lamps that have gone into disuse because of some minor defect, is rather surprising and all such equipment is being restored to service. These men also sell new lighting equipment but do not handle appliances. Of course, many prospects for all sorts of appliances, ranges, water heaters, refrigerators, washing machines, ironers, etc., are uncovered, and these prospects are passed on to the regular appliance dealers, and it has been this phase of the work that completely eliminated all anticipated objections from the appliance dealers that their repair business was being appropriated.

I have endeavored in this paper to give you a cross-section of conditions in California and in a rather sketchy manner something of the various sales plans, together with the objectives for this year, and I sincerely hope that of the various matters touched upon, you may find something that will be helpful to you in the carrying out of your particular program of business development.

Commercial Progress Viewed from the Field

By Dr. G. W. Allison

Field Representative, Edison Electric Institute

An address before the Third Annual Sales Conference, Edison Electric Institute, Edgewater Beach Hotel, Chicago, March 25 and 26, 1936.

FOR a number of years I have had the splendid cooperation of you men in the national programs that we have promoted. This is an opportunity to again thank you for it. Without your splendid cooperation the results would have been different.

It has been nearly twenty years now since my first contact with the electrical industry, and this subject makes me somewhat reminiscent. A quick glance back to the past reveals a time when commercial activity was not so important as it is today. In that period we are reminded of products so different in appearance and performance from the products of this day.

During these past years I have had the privilege of attending many conventions and sales conferences. Here, too, is a real contrast. Of all the sales meetings I have had the pleasure of attending, this sales conference is outstanding. More recent things may appear most significant, but this conference does seem to be the best I have ever attended.

"Commercial Progress Viewed from the Field"—the importance of commercial activity, the growing acceptance of sales plans, out of a period of construction, through the different periods of development that this industry has passed, and now we stand face to face with the commercial department of this industry—as Mr. Whitwell pictured it yesterday, the "shock troops." These shock troops are out in front, with a real job to do. I am sure that in this industry the attitude has changed over the years until, today, no one questions but what each and every part of this industry is, or must be, commercially- or sales-minded. The whole program is a selling job.

Let us look back for just a minute and think of some progress that has been made. I am going to cite just two of our national programs. The Electric Refrigeration Bureau, organized in the beginning of this depression, has seen the volume of refrigeration gradually advance from 775,000 electric refrigerators sold in 1930, until last year when over 1,500,000 were connected to the meters, and the end is not yet.

DR. ALLISON

Better Light-Better Sight, organized in the very depths of the depression, when lamp manufacturers were more than distressed, has seen an active growth, until last year the lamp manufacturers were all at work, at work full time, and when we say full time, we do not mean five days a week. Many of them have reported seven days a week, twenty-four hours a day, and then 50,000 to 60,000 orders behind at the factory.

I had an unusual experience down in the Southwest part of this country a year ago. Allen Navis, one of the lamp salesmen, and I, met at Fort Worth. We went to Dallas together, and at Dallas he got a telegram telling him to pack up his traps and come in, not to take any more orders, that they had more than they could handle. That happened during the depression.

What are the factors that produced this growth? We can't speak of all of them, but I do want to speak of one particular phase of it. I think the secret of this progress has been national cooperation, and when I speak of national cooperation, I want to think of that phase of it that seems to be more clearly on the horizon of everyone's thinking.

I was thrilled yesterday with Mr. Peak's presentation, the pledge that the contractor takes, the clear-cut statement of his aims. I think we have to come to understand that the aims of all our major branches of the industry are common, that their accomplishments and their returns in the development of this industry are common to all. We must work together.

I might say that we are never going to get beyond the time when we will need that national cooperation. It must be more and more perfected, with better understandings, and more thorough considerations. Why? Because after all is said and done, a national program is nothing more or less than a sort of overall picture. It succeeds or fails in proportion as it gets local tie-in. It is the local activity that will always determine the success or the failure of the national program.

One of the things I should like to say here, from the rather close contact with field activity over these last six years is this (Mr. McFadden touched upon it, different speakers have touched upon it, and might we put it this way): The national program cannot cover the country like a blanket perfectly fitting each local situation. It may need some alteration. Part must be taken off here, something added here, maybe some part left entirely out, but the local situation must be kept sacred.

May I go further and say that perhaps the less domination that the local situation has from any national viewpoint, the better off the local situation actually is, for this reason: It puts a challenge up to the local situation, to develop initiative, and planning, to meet its situation, a situation that nobody can know or understand half so well as the people who are intimately and vitally related to that local situation.

If I were asked to name the one outstanding barrier in this industry today, the most fundamental problem with which we are faced as to distribution—and let me impress upon you that it affects every man in this room, regardless of what his connection with the industry is, whether he be a dealer, selling a few or many appliances, whether he be

a distributor, whether he be a manufacturer, whether he be a utility man—this is it: Public attitude. I think it is on this job that we must concentrate and cooperate, the correction of public attitude. We can do it.

One of the things to me as I look at this industry is that no other industry in this country is more vital than ours. That was brought out very definitely in the floods. No industry in this country touches life more completely, perhaps, than this industry. No industry in these United States has such a dramatic story to tell as we have, but you never can tell that story in terms of rates, power factors, load factors, stand-by services, or what not. The public doesn't understand it. All over this country, regardless of wherever you go, regardless of what rates are, the outstanding objection to this industry is that the cost of electric service is too high, and it doesn't make any difference what the rates are.

Public attitude toward any industry is the determining thing in the volume of business that industry does. If the public attitude is good, the industry stands a chance to do a major volume at a minimum sales cost. If the public attitude is not good towards an industry, it stands to do a minimum volume of business at a maximum sales cost, and that may mean red ink, and every man in this room is affected by it.

Just how effective is public opinion on an industry? I wish I knew. Here is one thing I do know. In the City of Chicago I have had some friends over the years, most of them professional men, doctors. Just before a recent steamship disaster on the East Coast, I was approached by one of the friends and a proposition put up that my wife and I should join him and six other doctors and their wives, taking one of the large freighters that has just eight cabins, we would take all the cabins, and make a cruise around the world. Well, of course, I couldn't go. This I do know, that shortly after we had the steamship disaster, I received a letter from Dr. Lowenthal telling me that the trip had been canceled, and he told me why. They had lost confidence, that is why.

If a thing like that will affect public response, why will not this constant and persistent attitude of the public, that the cost of electric service is too high, affect the sale of appliances? And it does.

Why does the public think that? I think there is a definite reason, and it isn't the agitation that makes them think it, either. Let us get down to some deeper thinking on this thing. Anything that does not attract my attention can never get any concentration from me, or regardless of whether a thing attracts my attention or not, if that thing in the processes does not enlist my personal responsibility and tie it in with it, I can never fully appreciate it or understand it. That is fundamentally sound in pedagogy. Let you and I think for a moment of electricity as a product serving human needs, and contrast it with other products.

Let us take the products that serve human needs, food, clothing, house furnishings, anything you want. With all these products there is a good deal of activity, traffic, trains roll into towns. On many of these cars there is an indication of what they contain; Swift Premium Hams, California Fruit Express, furniture, automobiles. Maybe they come in on boats. No matter how they come, there is a good deal of traffic, and the public is constantly reminded there is movement of these products. The products are unloaded into warehouses. From warehouses they are loaded on to trucks and hauled out through the city streets. Constantly there is a truck on the street, with the name of the man and the wholesaler—tea, coffee, milk, furniture, whatever it is. You know you don't have to have somebody tell you that there goes some furniture, there goes some meat, some food, you know it.

That is not the end of it. After this stuff is delivered to the retailers, then Mr. and Mrs. John Q. Public are responsible; they have to go to the retailer and pick out so much of this and so much of that, so much of this and so much of that, either phone for it, or provide for its being ordered. They are responsible. Then it has to be delivered to the home, and there is more responsibility, and then the stuff all requires an individual application of responsibility in the taking care of it, in the serving of it. There is no end to the responsibility of it.

What about this product of ours? There are no trucks delivering kilowatt hours. It would be a good thing if there were. Go to a transmission line, if there is one near you (if it is an underground service it is worse) and what do you see? Nothing—a steel tower with cold wires, as far as you know, inactive, not one thing going on, nothing to attract attention. What about the individual responsibility? There isn't any.

You have had parties in your home. Suppose you are having one tonight. What happens at the breakfast table? Perhaps a check-up. Someone says: "Well, now, let's see. We have enough of this, and enough of that. When you come home tonight, you stop by and get such and such." But nobody ever heard anybody say, "Don't forget that extra bucket of kilowatts we are going to need."

They don't have to think about it, whether they are going to use it or whether they are not going to use it. They don't have to think whether they are going to use one watt or a thousand. They don't have to think. Gentlemen, that thing that does not attract you by action, that thing that does not enlist your responsibility, you can never understand and you will never appreciate. It is impossible.

There is another phase. Mr. Wilson spoke of that bill. Of course I would think this, because I am just about one hundred per cent Scotch, but I want to tell you it is human nature to see a total bill and immediately say, "There is something wrong." It is not right; that is the reaction to the total bill. You get your bills perhaps from charge accounts you have in department stores, as I do. What do we do? We unfold the thing, see the total amount and immediately say, "There is something wrong." We run our eyes up the bill: "Yes, I got the shirt and tie, Mother got the chair, Sis got the dress. I guess this bill is all right. I might as well pay it."

On the other hand, there is that little slip of paper, so small, with the total amount on it, and the agitation is going on about the high cost of electric service. Downtown we go with it, something in our mind telling us it is not right. The fellow sticks it in the window, and the girl rubber-stamps it and gives it back to him and keeps his money, and brother, does he think it is too high!

What are we going to do about it? It is your responsibility and it is mine. In the selling of these appliances we can dramatize this service. Many of the things we sell are servants for the home, and as literally servants, they are automatic, as though we were hiring somebody. Never once have I failed in a luncheon meeting, when the opportunity has been mine to speak, to point this out, and I always found somebody who came up to me and thanked me and said, "It has given me a new attitdue toward electric service."

The high cost of electric service—

how high is it? If you take the total domestic bill, and divide it by the total number of domestic customers, it is about eight cents per day that the average home pays for its electricity. Isn't that exorbitant? Terrible!

It is the least item they pay. They don't stop to think about it, and we don't tell them. But some one says: "Yes, but the trouble of it is in the cost of the spread from generator to consumer." How much is it? Some fellow says it can be generated for two mills. I don't know whether it can or not, but I am a Scotsman, and if you tell me a thing costs two mills, and when I get it I have to pay five cents for it, if you don't do some explaining, I know I am being rimmed some place along the line.

You know, that thing bothered me a lot. I went down in Ed Stahl's territory. What a fine trip we had over to Kettleman Hills and out to Coalinga! Out there, there lives a nice Scotsman by the name of Levy, who owns a sheep ranch in Southern California. We went over to see Levy, and somebody said, "How are things going?" One of the first cracks Levy made was, "They would be going fine, if you so-and-so's didn't charge me so much for my power."

We went out to see the ranch. A friend of Levy's was in the crowd, I think he is in the clothing business in Coalinga, another Scotsman. It was sheep-shearing time, and there was quite a bit of wool lying on the ground. I asked Levy, "What is that wool worth?"

He said, "It is worth a damn sight more than I am going to get for it."

"What are you going to get for it?"

"I will be lucky," he said, "if I get from 30 to 32 cents a pound for it."

I turned to the friend who was in the clothing business and asked, "How much wool is there in a suit of clothes?"

He said, "At that price, anywhere from sixty cents to a dollar's worth." Then I turned and said, "You so-and-so's, you say we are robbers. Why, we are pikers. I paid forty-five bucks for this suit, $45 for a dollar's worth of wool."

You know, I never had anything feel so good in my life and I did ride him. After that I said, "The difference between you and me is that I am satisfied, and you are kicking."

He said, "What do you mean?"

"I am satisfied," I said, "think what this darn suit would look like if I made it myself. Suppose I had to wash that wool, card that wool, spin that wool, weave that wool. Why, I never would have a suit. I might have gotten a patch so big, pinned it up with a safety pin and gone down the road Gandhi fashion." That idea seemed to click very well.

The next week I ran into another fellow who wanted to tell us all about his cannery. Out of that cannery goes a high-grade specialty peach, which is sold at the high-grade delicatessens in New York for about 35 cents a can. As he was talking I said, "What do you pay for your peaches?" He gave me a figure and I said, "Is that a bushel?"

"Hell, no," he said, "that is a ton."

I asked how many peaches there were in a can. He told me where to go to, but I insisted, and we finally found out to the best of our ability that perhaps there was a cent and a half's worth of peaches in the can. Then we had some more fun.

Up in Oregon, I saw a great big pile of green hides. I said to the fellow, "What are you going to get for them?" and maybe he didn't sing the blues. He said he actually sold hides for less than twenty cents apiece.

He said, "I am going to be lucky if I get from forty to fifty cents for a hide." Then we started out figuring how much hide I had in my shoes, and found out I was lucky if I had eighteen cents' worth.

You fellows know there is just as much difference in that kilowatt on a bus bar and in that home, as there is in that raw wool and this finished product, or in those peaches and that canned product, or in those hides and a pair of shoes, and the public will know it if you will tell them, but it is our responsibility to tell them, and it is our responsibility to dramatize it.

Some of you have heard my old story of the servants in my home, seventeen of them. Yes, you can cut them down. Let's get an efficiency expert and cut them down to seven. You can double the jobs up, but you can't get it below seven. In my home there is heat and hot water, we no more think of it than of walls and ceilings. There is refrigeration, and a lot of other things, real servants in my home. If I had to hire them as human individuals, I would have to build a house larger than the one I live in to house them, and I would have to feed them, and pay them all salaries somewhere near $300 a month.

I will throw in my messenger runner, and he has it over any messenger runner Greece ever had, and my master of ceremonies, who brings Walter Damrosch in to play my dinner music for me. What do I pay them? No housing, no feeding, no labor troubles, no tattling to the neighbors. If I had that many servants, I wouldn't have a home, I would have an institution. These fellows are always on the job, and I pay that whole crew, every one of them all totaled up, not one of them, all of them, about $16 a month, for the whole gang. You talk about bargains, and you talk about an opportunity to dramatize.

This kitchen thing, what are we selling this American public? Are you out trying to sell kitchens? As such, you wouldn't sell many—but if you sell pride of ownership, increased valuation of property, making property more salable and more rentable, increased living standards, release from drudgery, that is something else. Kitchens have been women killers. What are we selling them? I will tell you what we are selling them.

Here is a picture; take the old-fashioned kitchen. Some time ago my wife and I attended a wedding. We went over to the church, which was beautifully decorated. We knew the mother and father of both the girl and the boy. We sat there, and the organ played softly, "O Promise Me," and blended it into "I Love You Truly" then they struck up that old timer, "Here She Comes." I turned around and looked back and there she came. She was beautiful! I looked down at the altar and there stood a strapping young rascal. I said to my wife, "Here is one wedding that is going to be a success."

She said, "I am sure of it."

They weren't wealthy; they were well-educated and intelligent and capable.

Then I had a picture in my mind. I said to myself, "What if I could go over there and slip a blindfold on that girl and show her the fourteen years ahead of her, as a landscape. I would lead her out to some high prominence and take that blindfold off of her."

She would say, "How beautiful!"

It does look beautiful from the altar, and it is a good thing it does.

"What are those lovely brown foothills, that snow-capped mountain? What mountain is that?"

I would say, "That isn't a mountain.

(*Continued on page* 153)

Convention Notes

WITH the Institute's Fourth Annual Convention hardly more than a month off, indications point to its becoming the best attended public utility gathering in recent years.

The central location of Saint Louis, with its splendid transportation facilities is counted on to draw larger than usual delegations from Western, Middle Western and Southern organizations, together with normal representation from the Eastern seaboard, since Saint Louis is only eight hours by plane and less than twenty-four hours by railway from the principal Eastern cities. Air conditioned meeting rooms in the new Municipal Auditorium, excellent hotel accomodations at very reasonable rates and the city's traditional hospitality will be factors in making the Convention period enjoyable.

The business sessions have been planned for the maximum of usefulness and convenience to delegates. Six general sessions are scheduled; the first to be held Monday morning, June 1st, beginning at 9:30; the next, Monday afternoon, June 1st, at 2:30; the third, Tuesday morning at 9:30; the fourth, Wednesday morning at 9:30; the fifth, Wednesday afternoon at 2:30; and the final session, Thursday morning, June 4th, at 9:30. Tuesday afternoon, June 2nd, has been reserved for special meetings of the several committees of the Institute. The registration desk will open at 8:30 a.m., Monday, June 1st. The registration desk and business offices of the Convention will be located in the Municipal Auditorium, where the general and committee meetings will be held.

The program will be filled mainly with addresses and discussions by leading executives on subjects of immediate and vital importance to the industry. In addition, several outstanding speakers in other fields will discuss matters of broad national importance. *The complete program will be supplied to member companies at an early date, and will also appear, with other information, in the May issue of the* BULLETIN.

Arrangements have been made with the railroads to provide reduced round-trip rates to the Convention. These rates will be operative from all points in the United States. Transportation information, including air transport schedules and identification certificates will be mailed to all member companies early in May. In the event that certificates have not been received by the middle of May, or more are desired, others will be available from the general offices of the Institute. Hotel circulars have been mailed to member companies of the Institute and to electrical manufacturers. Additional copies are available upon request to the Secretary of the Institute, 420 Lexington Avenue, New York, N. Y.

Entertainment planned for the Convention includes a card party and tea for the ladies to be held on Monday afternoon, June 1st, at Glen Echo Country Club. Busses will leave the Hotel Jefferson, 12th and Locust Streets, at 2:30 p.m. All ladies in attendance at the Convention are cordially invited to participate. A sightseeing tour has been arranged for Tuesday afternoon, June 2nd. Tickets will be available

(*Continued on page* 156)

RATES QUOTED BY ST. LOUIS HOTELS FOR THE 1936 EDISON ELECTRIC INSTITUTE CONVENTION

HOTELS AND LOCATIONS	RATES BY THE DAY		
	Single with Bath	Double with Bath	Twins with Bath
AUDITORIUM Pine & 19th Sts.	$2.00	$3.00—$3.50	$4.00—$4.50
CHASE Lindell Blvd. at Forest Park	3.00—5.00	5.00—7.00	5.00—7.00 Up
CONGRESS Union Blvd. at Pershing Ave.		4.00	5.00
CORONADO Lindell Blvd. at Spring Ave.	2.50 Up	3.50 Up	4.00 Up
DeSOTO Locust at Eleventh	2.00—3.00	3.00 Up	4.00 Up
FOREST PARK HOTEL West Pine Blvd. and Euclid Ave.	2.00	4.00	4.00 Up
JEFFERSON 12th Blvd. at Locust	3.00—5.00	4.00—6.00	5.00—7.00
KINGS-WAY Kingshighway & West Pine	2.00 Up	3.00 Up	4.00 Up
LENNOX Ninth & Washington Ave.	3.00 Up	4.50 Up	5.00 Up
MARK TWAIN 9th & Pine Sts.	2.50—3.50	3.50—4.50	5.50 Up
MARQUETTE 10th & Washington Sts.	2.00—4.00	3.00—5.00	
MARYLAND 9th & Pine Sts.	2.50—3.00	3.50—4.00	4.50—5.00
MAYFAIR 8th & St. Charles Sts.	3.00—4.50	4.50—6.00	4.50—6.00 Up
MELBOURNE Grand Ave. & Lindell Blvd.	2.50—4.00	4.00—6.00	4.50—7.00
PARK PLAZA Kingshighway North of Lindell	3.50 Up		5.00 Up
STATLER 9th & Washington	2.50 Up	4.50 Up	5.00 Up
WARWICK 13th & Locust Sts.	2.00—2.50	3.00—4.00	5.00—6.00
YORK 8th & Market Sts.	2.00—2.50	3.00—4.00	

View of Glen Echo Country Club, which is to be the scene of the ladies' card party during the Convention of the Edison Electric Institute in Saint Louis

Saint Louis

The Institute's 1936 Convention City

WHEN the electric power industry of the United States gathers in St. Louis, on June 1 for the annual Edison Electric Institute Convention, its members will find themselves in a community rich in its background of American history and of the power industry's history as well.

It will not be the first time that the power industry has selected this middle western metropolis as the scene of its annual deliberations. As early in the industry's history as 1893, the organization that preceded the Institute met in St. Louis and had its attention focused upon the important place which that city was playing in the early history of the industry. This otherwise conservative community had at that time already taken a leading place in substituting the electric motor for the cable and the locomotive as a means of operating the street car system. The delegates to that convention found in St. Louis the largest electric lighting installation in the world (supplying no less than 80,000 incandescent lamps). St. Louis had also the largest arc light equipment in the world—and both of these distinctions were retained until the Chicago World's Fair set a new high mark in electric lighting installations.

Now, returning forty-three years later to the scene of that convention, the members of the power industry will find a city still abreast of the times in its electric light and power service and, in addition, they will enjoy four days in a hospitable community well equipped to entertain and interest its guests. To deal first with the electrical side of St. Louis today, it can be briefly pointed out that the electric power service facilities in St. Louis include one of the most efficient steam generating plants in the world, one of the earliest major hydro-electric developments, one of the first transmission lines to cover a distance of more than one hundred miles, and another hydro-electric generating plant which, at the time it was built, impounded the largest man-made lake in the world.

As for the city itself, rich though it is in historic lore, St. Louis is of even greater interest today as a modern American city, full of the vigor of the West. Few can equal it in attractiveness, or as a place in which to live and work and play. Every advantage of health, climate, accessibility, convenience and enterprise is here. Every modern development—civic, commercial and social—is present. Schools, hospitals, living conditions and recreational facilities—all are noteworthy. An old city with new ideals, its remarkable progress in recent years has more than ever marked it out as a City of Destiny.

The foremost city of the Mississippi Valley, and the largest between the Great Lakes and the Pacific Coast, St. Louis offers the advantages of modern metropolitan life, with all its exhilarating stir and sparkle. Its immediate urban population is 830,300, but in Metropolitan St. Louis, including its natural suburbs, live more than a million and a quarter people. Unlike many cities, St. Louis has never known extreme boom periods, for its growth has been sure and steady from the beginning.

Rising westerly from the river front, St. Louis and its environs stand on rolling ground, high above water levels. The main business and shopping sections center in an area near the river, with the residential districts

spreading like a fan for miles to the north, the west and the south. Continuing along smooth boulevards beyond the city limits are beautiful suburbs containing thousands upon thousands of attractive homes, of every conceivable type and architecture. Farther out, among the hills and valleys, are a score of charming country clubs. Just across the river from the downtown heart of the city is East St. Louis, a manufacturing city of some 75,000 people. Other manufacturing sections, segregated from those devoted to residential purposes, are laid out in districts especially favorable for industry.

Some four miles west of the main business section of St. Louis, and forming a center of its own, is Forest Park —a huge natural playground of nearly 1400 acres, beautified by artistic developments to a degree which has made it internationally famous. Surrounding the park are wide boulevards, lined with splendid residences and magnificent public buildings. Beyond is a great university whose grounds extend for almost a mile along the westward boulevard, and nearby are several preparatory schools. A number of fine residential sections lie immediately to the north, west and south. Many other parks in different parts of the city, exquisitely cared for, offer rest and recreation in beautiful settings.

To the St. Louis shopping district come thousands of people from all sections of the country, for the St. Louis shops have long borne a national reputation for style, variety and value. Nearly all the great manufacturing concerns of America are represented here, St. Louis being recognized as the natural distributing headquarters for a vast consuming population. Hence, practically anything that can be had anywhere is obtainable in its markets.

In St. Louis there are always interesting things to see and do. There are amusements of every description. The downtown theaters and amusement places furnish varied entertainment for theater-goers.

Grand opera and the best stage productions are presented in their season. Magnificent motion-picture houses are conveniently located. The symphony orchestra concerts, the municipal opera, the municipal auditorium, the frequent band concerts in the public parks, playground festivals and pantomimes, and varied seasonal activities supply wholesome amusement. Two major league baseball teams play championship ball here throughout the summer. Professional hockey and football teams and a number of professional soccer teams play here regularly during the fall and winter. Delightful river trips are available. Concrete roads in all directions invite the motorist to a thousand points of interest, and the great scenic summerland of the nearby Ozarks freely offers the "Switzerland of America" for a summer vacation.

The remarkable recent development of St. Louis is based on sound and definite reasons, some of them foreseen a century and a half ago. The basic advantages which had lain dormant here for years, casually taken for granted, are now more generally understood and appraised at true value. The central location of this "City Surrounded by the United States," its nearness to raw materials and its unexcelled transportation are vital factors of a great industrial center. Its splendid residential districts and attractive surroundings have given St. Louis a nation-wide reputation as a city of beautiful homes. Its civic energy and broad-mindedness provide superior opportunities for the

enjoyment of life, for home comforts, healthful and pleasant living conditions, restful relaxation, and the education of children.

Principal streets have been widened. A splendid Memorial Plaza, grouping the most important municipal buildings into a beautifully related architectural assemblage, is now taking definite form in the heart of the city. Another gracious plaza, opening out from the Union Station, now beautifies St. Louis' huge railroad terminal, welcoming travelers with a fairer impression of the city as it is today. Plans are under way for a complete transformation of the older part of St. Louis, along the river front, through the erection of a beautiful memorial to Thomas Jefferson and the early pioneers. The latest type of ornamental street lighting—an installation costing $8,000,000—has made downtown St. Louis a Great White Way. A huge improvement program of a city-wide nature financed by an $87,372,500 bond issue passed in 1923, and a $16,100,000 bond issue voted in 1934, comprise traffic betterments, city beautification, commercial development, and increase of municipal facilities.

Charles Trefts, St. Louis

A Sunken Garden in Saint Louis

The Mississippi

The annals of American history contain no more beloved tradition than "Ole Man River"—the Mississippi, which flows placidly beside St. Louis.

Up and down its waters once floated the growing traffic of a continent. Long before the coming of the railroads, the river boats carried slaves and statesmen, travelers and planters, good men and evil, with all their goods and trade. Rafts and flatboats swam the great waters, carrying the products of northern farms to the waiting ships of New Orleans. On these rafts, as a young man, traveled the immortal Abraham Lincoln with his loads of logs and rails, cut by his own hand.

Charles Trefts, St. Louis

Ole Man River—Steamboats under Eads Bridge

As the river trade grew, there grew with it the vivid history and traditions of the central United States. To pilot a river boat became the dream of many a boy who lay beneath the willows and watched the river flow by. And down from Hannibal, Missouri, came that great humorist who gave to the world the Mississippi's matchless literature, whose name is a monument to its life and story—the beloved Mark Twain.

Where once crude ferries plied, giant bridges of steel now cast their spans over the Mississippi at St. Louis, connecting East and West. Across modern government and municipal docks at its waterfront, served by a great fleet of government barges, are now annually transported 765,000 tons of freight. Much of this is for shipment to foreign countries via ocean steamships from New Orleans. Thus the Mississippi gives the inland city of St. Louis the advantages of a seaport, and so, in modern times, it has revived the glory of pre-war days.

Other Attractions

The famous St. Louis Municipal Theater in Forest Park is the largest municipally-owned theater in the world, rivaling in extent and bold conception the stately outdoor temples of ancient Greece. With improvements being added each year, this outdoor theater has been gradually developed into the splendid amphitheater it is today, with tier after tier of seats accommodating 10,000 persons. Some idea of the popularity of

this theater can be obtained from the fact that on many occasions nearly every seat is occupied and in addition, several thousand people view the performances from the long pergolas in the rear.

The Missouri Botanical Garden, popularly known as Shaw's Garden, is America's largest institution of its kind and ranks only second to the famous Kew Gardens of England. It was founded in 1860 by Henry Shaw, a St. Louis philanthropist. It contains the largest collection of plant life in the Western Hemisphere and is famous the world over for its wealth of botanical species and its beautiful floral displays. It comprises a city garden of about 75 acres, an out-of-town extension of more than 1625 acres, and a tropical extension at Balboa, Panama.

At the corner of Broadway and Market Street in St. Louis is the "Old Court House," a century-old historic building, from the east door of which slaves and other personal property were auctioned in antebellum days. The stone auction block may still be seen, also the prison cells in the basement, and the courtroom in which Dred Scott's famous fight for freedom was begun. At that time Missouri was the center of the seething dissension between North and South which soon after culminated in the Civil War.

St. Louis has a remarkable group of sixty-five city parks, covering approximately 3000 acres. Forest Park, with its 1400 acres, is one of the largest city parks in America. It contains a number of picnic grounds, a world-famous zoo, 42 tennis courts, 22 baseball diamonds, soccer fields, a parade ground and three golf courses. In this huge park is the Municipal Open-Air Theater, the Art Museum, the Jefferson Memorial, the "Jewel Box," the site of the proposed aquarium, and several public buildings. There are lagoons for skating and canoeing, miles of soft bridle paths for horseback riding, long serpentine roads for motoring, and hundreds of acres of velvety greensward. Nearby is a popular outdoor swimming pool and amusement park, and the Arena, one of the largest structures of its kind in the country.

In the days preceding the Civil War, Ulysses S. Grant, who later commanded the Northern forces and finally became President of the United States, was a farmer near St. Louis and sold wood in the city. The log cabin which he built with his own hands and in which he lived, is still preserved.

This cabin stands today about a mile and a half from its original site, near the entrance to Grant's Farm, the country place of a wealthy St. Louisan.

The Zoo, one of the sights of St. Louis, is still another of the great municipal enterprises which have made this city so well known. Supported by a direct tax which the people voted for its maintenance, this huge educational feature has been developed into one of the chief zoological gardens of America. Experts concerned with the captivity of wild animals have come to St. Louis from all parts of this country and abroad to study the ideal methods used here, and particularly to examine the unusual arrangements by which the animal dens and paddocks have been transformed into near-to-nature haunts.

The Zoo occupies 77 acres in Forest Park. Its more than 1550 living creatures, including mammals, birds, fish, reptiles and amphibians, have been collected from all parts of the globe.

At the Jefferson Memorial in Forest Park, standing on the site of the main entrance to the World's Fair of 1904, is a collection of middle western Americana and historical documents of early St. Louis. Most interesting of the modern attractions here is the complete showing of the famous Lindbergh Collection, including gifts, medals, trophies and souvenirs from a score of foreign countries and from thousands of sources. These have been viewed by more than 5,000,000 persons since they were put on exhibit. From 500 to 1200 people call to see these trophies daily. Colonel Lindbergh recently deeded to the Missouri Historical Society custody of the hundreds of mementoes which have come to him in connection with the epoch-making flight of the "Spirit of St. Louis" across the Atlantic, and his friendship tour to the countries of Mexico, Central and South America.

View of Downtown St. Louis

Judges Appointed for Prize Contests

A GRATIFYING number of entries for the several prize awards administered by the Edison Electric Institute were received again this year. The papers and exhibits are now receiving their preliminary reading.

The closing date for papers entered for the Byllesby, Forbes, Lindemann and McGraw prizes was March 1st, while the closing date for the remaining contests was April 1st. Results of the contests will be announced at the June Convention of the Institute.

The judges for the several awards, appointed by the Prize Awards Committee, of which Mr. Frank W. Smith is chairman, are listed below:

H. M. BYLLESBY

Dean T. MADDEN, *Chairman,* New York University, Washington Square East, New York City.

B. F. BRAHENEY, Vice-President, Byllesby Engineering and Management Corporation, 231 So. LaSalle Street, Chicago, Ill.

W. PAXTON LITTLE, Niagara Hudson Power Corp., 15 Broad Street, New York City.

B. C. FORBES

J. F. OWENS, *Chairman,* President, Oklahoma Gas and Electric Co., Oklahoma City, Okla.

BRITTON I. BUDD, President, Public Service Co. of Northern Illinois, 72 West Adams Street, Chicago, Ill.

D. C. GREEN, President, The Middle West Corporation, 20 No. Wacker Drive, Chicago, Ill.

A. L. LINDEMANN

EARL WHITEHORNE, *Chairman,* Assistant Vice-President, McGraw-Hill Publishing Co., Inc., 330 West 42nd Street, New York City.

MILDRED NICHOLS, Home Economics Director, Graybar Electric Co., 420 Lexington Avenue, New York City.

ADA BESSIE SWANN, Director, Home Service Center, The Crowell Publishing Co., 250 Park Avenue, New York City.

JAMES H. McGRAW

R. H. TAPSCOTT, *Chairman,* Vice-President, New York Edison Co., 4 Irving Place, New York City.

E. B. MEYER, Chief Engineer, Public Service Electric and Gas Co., 80 Park Place, Newark, N. J.

L. W. W. MORROW, Editor, *Electrical World,* 330 West 42nd Street, New York City.

CHARLES A. COFFIN

THOMAS N. McCARTER, *Chairman,* President, Edison Electric Institute, and President, Public Service Corp. of New Jersey, 80 Park Place, Newark, N. J.

KARL TAYLOR COMPTON, President, Massachusetts Institute of Technology, Cambridge, Mass.

FRANK W. SMITH, *Chairman,* Prize Awards Committee, Edison Electric Institute, and President, Consolidated Edison Co. of New York, Inc., 4 Irving Place, New York City.

AUGUSTUS D. CURTIS

Dean JOSEPH W. BARKER, *Chairman,* Columbia University, School of Engineering, New York City.

H. B. DATES, Case School of Applied Science, Cleveland, Ohio.

ELY JACQUES KAHN, 2 Park Avenue, New York City.

GEORGE A. HUGHES

SHELLEY TRACY, *Chairman,* President, Tracy Locke, Dawson, Inc., 22 East 40th Street, New York City.

L. E. MOFFATT, Editor, *Electrical Merchandising,* 330 West 42nd Street, New York City.

PAUL H. MYSTROM, Professor of Marketing, Columbia University, School of Business, New York City.

THOMAS W. MARTIN

PHILIP S. ROSE, *Chairman,* Editor, *Country Gentleman,* Curtis Publishing Co., Philadelphia, Pa.

T. K. QUINN, President, Maxon, Inc., 570 Lexington Avenue, New York City.

Dr. E. A. WHITE, Director, Committee on the Relation of Electricity to Agriculture, 58 East Washington Avenue, Chicago, Ill.

Commercial Men Record New Triumphs

(*Continued from page* 102)

ernizing by Electrifying. Following the luncheon period there was a showing of the four-reel film, "The Courage of Kay."

Chairman Grove of the Plan Committee held a meeting of his group to discuss promotional features for the coming months.

Better Light-Better Sight Bureau

The Executive Committee of the Better Light-Better Sight Bureau met on March 24 at the call of Chairman M. E. Skinner to take under advisement immediate activities of the Bureau and to schedule fall activities. At this time Chairman Skinner made only the brief but significant announcement that Better Light-Better Sight is to spread its influence into commercial and industrial fields. Especially prepared promotional features are in the making for later discussion.

Sales Committee

Following the close of the Sales Conferences a luncheon meeting of the Sales Committee was held under the Chairmanship of H. P. J. Steinmetz. An entire afternoon was devoted to reports of subcommittees, a discussion of marketing subjects and general business. It is of special interest that the Committee formerly endorsed the "Definition of Air Conditioning" as prepared by the National Better Business Bureau and approved by the American Society of Heating and Ventilating Engineers, American Society of Refrigerating Engineers, and Air Conditioning Manufacturers' Association.

Copies of Papers

It is regrettable that space does not permit the reproduction of all papers presented before the Industrial Power and the General Sales Conferences that were released for publication. Some will be printed in a later issue of the BULLETIN and others will be available in mimeographed form.

* * *

The success of these conferences may be attributed to the important and timely subjects presented and the authoritative handling by able speakers. We are appreciative of the new thoughts and ideas that were contributed to a large and representative commercial group. These new ideas may refresh viewpoints and be helpful in local selling. Selling is the one way out of our difficulties. We should make it vigorous and sustained on a wide front in our conquest of the expansive market for kilowatt-hours that lies ahead.

TROUBLE SHOOTERS

Another etching by Orie Van Rye,
District Engineer, New England Power Engineering and Service Corporation,
Providence, R. I.

VAN HALEN

The Flood at Hartford

The Graphic Story of Human Courage in Grim Struggle to Restore Hartford's Electric Service, as Revealed by the Hartford Daily Courant in its Issue of March 29th

From the Hartford Daily Courant

A GRAPHIC story of supreme human courage, in the face of an overwhelming series of disasters which descended upon the electric power industry in this area, is being brought forward gradually in interviews with members of the organization of the Hartford Electric Light Company. Working in the midst of 66,000 volts of electricity at the South Meadows plant, and 11,000 volts at the Ann Street substation, in water up to their waists; standing by hot boilers and condensers and fighting desperately for every inch against a natural force that would not be resisted, men stuck to their posts and never gave up.

While these men—and women, too—discuss the catastrophe calmly, they are disinclined to talk about the heroics of the situation. Their attitude is that they did no more than thousands of others—that they were merely doing what, to them, was a duty. Then, buffeted for four days and nights by the greatest flood in history, they plunged without rest into the job of restoring service to the stricken areas, with a determination that has brought to them and their superiors high commendation for carrying on despite unprecedented odds.

Before the South Meadows power plant was plunged into blackness at 1:28 a. m., Saturday, March 21, emergency transformers and equipment were being installed in temporary positions in and near Hartford. These units were under constant guard to prevent the curious from fatality. Electricity to certain vital services, as a result, was never completely disrupted.

Men Used to Trouble

If there is any one characteristic which, except for their loyalty, marks the "trouble shooters" of an electric company, it is their calmness and matter-of-fact manner. Given innumerable assignments either overhead or underground, in the day or the night season, with blackness and down-pouring rain hampering their task, and with high voltage transmission or distribution equipment about men on all sides, these crews accepted them willingly and eagerly, and when through came back looking for more.

It is a tribute to the training, experience and organization of these men that they carried on from dawn to dark and from dark to dawn with one predominant purpose, and that was to do all that was humanly possible to ward off the attack which nature had so suddenly visited upon these communities with such extreme violence.

Not a man engaged in this activity was injured. Their devotion to duty knew no limitation as they functioned in a cool and collected group, realizing full well that it was up to them to carry the brunt of the defense.

Log Gives Picture

Grim drama is portrayed in the company's terse log of events during and after the crest of the death-dealing waters had been reached in the Hartford area. In the background of the brief staccato-type bulletins contained in the load supervisor's daily reports, there is a wealth of material and facts providing a lucid outline of the magnitude of the task performed. The intricate type and hazardous nature of the power-making and distribution process, under normal conditions is in itself an awe-inspiring spectacle. To perform the same functions under the greatest of handicaps was the lot of the crews on the firing line. This they did determinedly and like Trojans, faltering never and complaining not at all.

Thus, they gave Hartford an exhibition of faithfulness to duty of the type known only to those who have witnessed military and naval combat where the same kind of performance is expected and received.

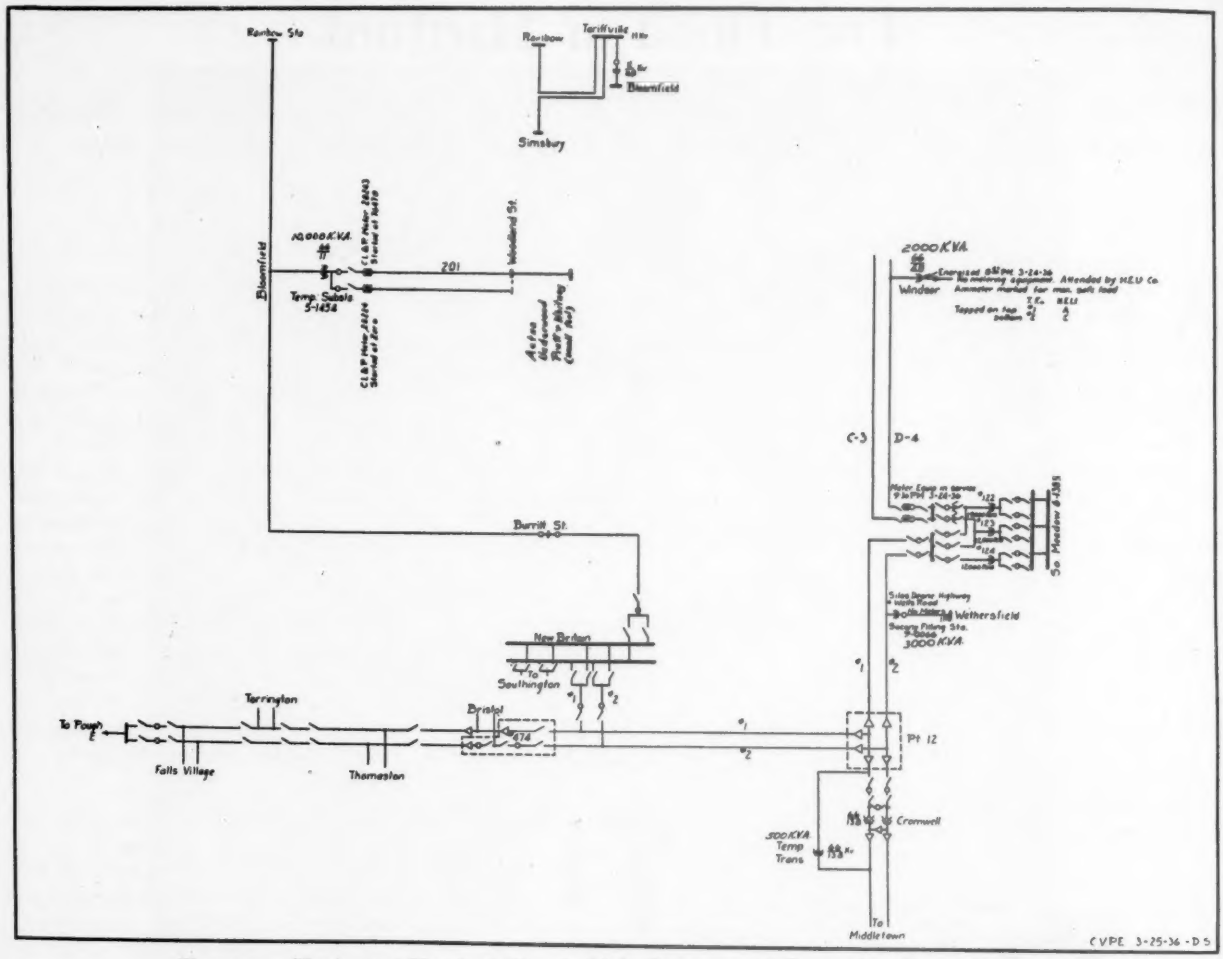
Stand at Power House

An account of the activity at the power house, where 80 men were on duty, has been pieced together after talks with those present. By Monday, March 16, the normal spring freshet had risen and had started to recede. Ice and snow equivalent to 10 inches of water remained in the northern valleys, but the natural run-off was in progress with no unusual circumstances noted. Then came the unseasonable, warm rain in the north with an inch of rainfall every four hours. The water at Bellows Falls dam in Vermont multiplied almost by half within four hours. All of the water power plants on the Connecticut River began to report that they were in trouble — beginning on Wednesday morning. It was soon evident that a great flood was in prospect, but the men at South Meadows power house stood their ground, confident in the strength of the rampart of a power house built to withstand a flood level of 37 feet—or seven and one-half feet higher than the previous all-time high water mark.

Hartford Aids Mass.

Early on Wednesday the 18th, the Massachusetts power houses began to call for help, and within two hours the transmission lines to Agawam were reconnected by temporary construction, and Hartford began to ship power to the flood-torn communities north of the state line. All day Wednesday the water power stations along the Connecticut, one after another, began to report water on their generating floors, and were forced to suspend operations. Frantic sandbagging was going on all along the hundred mile front of the valley. Transmission lines were being washed away in Massachusetts and Vermont. Every steam station was working to capacity. The huge stations of the Connecticut Light and Power Company at Devon and Montville were called on to stand by.

The Connecticut Power Company transmission line to New York State was reconnected. The Hamden steam station above Springfield reported it was under water and shutting down. The Springfield steam station reported a part of its walls washed away, and the plant closed down. All water power plants on the Connecticut River were now under water. Only the South Meadows steam plant on the river was holding on, drawing in power from Montville



Temporary Hook-up of Hartford Electric Light Company and Connecticut Power Company

and Devon, and helping many towns along the river. The situation seemed well in hand, although by early Friday morning it was apparent that the South Meadows plant had a bitter fight on its hands.

Doors and windows were barricaded, and sandbagged with sand, coal, or coke. Steam pumps were transformed by inspired ingenuity to water pumps. Water on the outside was 25 feet higher than the basement floor of the station. Pumps began to go under water, but kept on working. Condenser pumps were set to pumping water, and the condensers ran hot, without water, a desperate undertaking.

Not a Drop to Drink

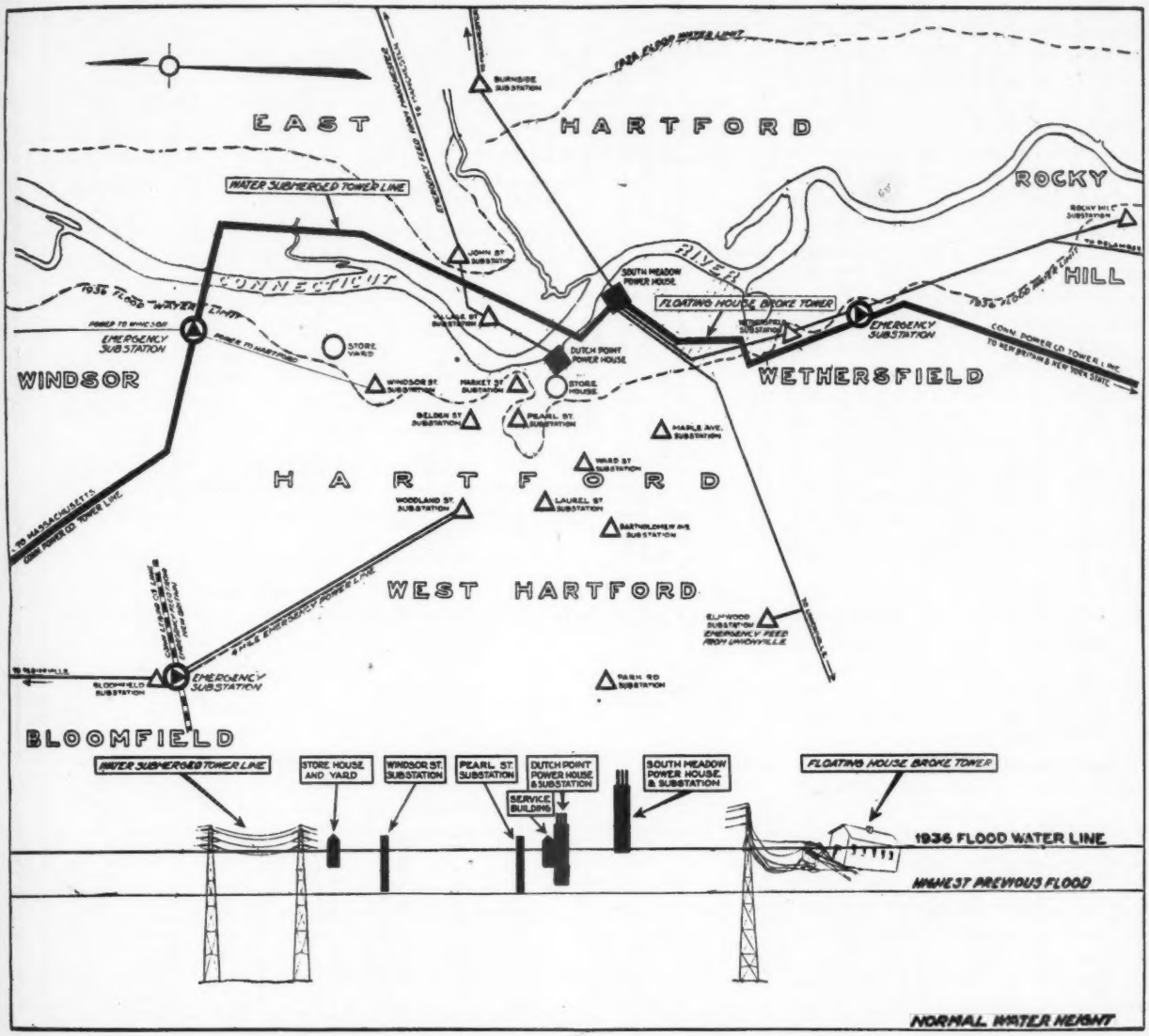
At this juncture early Friday, the nineteenth, the height of irony was reached when, with tons upon tons of water rushing past the plant, no drinking water was available because of a break in the city water main. Food supplies were practically exhausted, and, at the request of the company, the adjutant general assigned to the Coast Guard the task of carrying casks of water and food to the marooned crew at the isolated plant.

While the normal flow of water down stream at the power house is 5000 cubic feet a second, it was estimated that at the height of the flood more than 300,000 cubic feet a second poured past on all sides. There the men stood, working up to their waists in water, fighting to hold their own against the greatest flood in local history.

High Lines Hit

Early Saturday morning, the twentieth, there came a crushing blow. The wires of the transmission line to the north, on towers standing 50 feet high, began to be reached by the water. Finally the river actually touched the lines, they were short-circuited and made useless. Later in the day the lines westward to New York and the Connecticut Light and Power Company were hit by a floating building of the municipal shelter in the meadow and dipped into the water, useless.

The water continued to rise and the crews retreated to the upper floors of the station amidst the switching gear and the water lapped at the great turbines. Men argued over butts of cigarettes. It was so long since they had eaten that they had forgotten the day or hour. Some were not ashamed to say that they prayed for divine aid. Finally the Coast Guard cutter, after several hours of valiant maneuvering in the swift current, made a landing at a window of the station, and took off a portion of the crew—those who were dangerously exhausted—due to the report, then believed true, that the Holyoke dam had collapsed. A half hour later, when the Holyoke rumor proved unfounded, reinforcements were back again, and there they have been ever since,



Upper portion of drawing—Map of area showing location of Hartford Electric Light Company equipment and main lines—also extent of flood area. In addition are shown emergency supply lines from Bloomfield and Unionville.

Lower portion of drawing—Illustrates comparative elevations of equipment factors and flood waters.

working, cleaning, digging out, pumping and rebuilding.

Five Feet Above Specifications

South Meadows power house represents the last word in modern engineering skill. When it was built, the outside engineers engaged for the purpose recommended that it be at the 32-foot level. Nothing higher than 29 feet had ever been reached here, and a normal flood is below 24 feet. Company officials, however, arbitrarily increased the level of the plant to 37 feet. Even at that the 1936 flood was 6 inches higher.

It was amusing to these men to hear the question: "Why wasn't South Meadows power house built on Talcott Mountain?" They tell the inquirer that the plant uses every day in the course of its operations more than four times the amount of water used in the entire city of Hartford for all industrial, commercial and domestic purposes. Water is as necessary to a steam power house for condensing of steam as it is to a water power plant for the operation of the turbines. The Connecticut River is the only river in New England large enough to keep a power house like South Meadows in operation. It has to be located on the river or not at all.

One man at the South Meadows plant had an experience which he will not soon forget. Now it seems humorous, but it might have been a tragedy. This man went into the elevator at one of the upper levels. It was pitch dark. He pressed the button which he thought was for the generator floor below. Instead, however, he pushed the button for the lower floor, and down the elevator plunged into the water, up to his neck. He couldn't locate the button to attempt to raise the car, but succeeded in calling for help. Other men ran to the mechanism above and started the elevator up. He was considerably shaken, but otherwise unhurt.

35 Marooned at Sheldon Street

The Company's building at 410 Sheldon Street, housing the all-important

Wednesday March 18, 1936

Record Number	Time A. M.	Remarks
5011 Cont.	10:51	Vernon station is shut down with water on the generator room floor. They shut down just after 6 A.M. At #4 station the water is one foot below the floor and they expect to shut down soon. #3 Station is only able to carry 1-200 K.W. per unit. #2 Station a telephone pole came through a window letting water on to the floor but they expect to repair this damage and get back in service soon. The ice jam at Brattleboro started to move about 4-5 A.M. The jam at Waterford started to move at 9 A.M. Up to 8 A.M. Gage readings were as follows: Bellows Falls 100,000 c.f.s. Precipitations: Conn. Lakes .04" Somerset 1.52" 15 Mile Falls Trace Harriman D. 1.26' McIndoes Trace " S. 1.13" Bellows Falls .25" to 6 A.M. #5 Station 1.19" Vernon .25" 4 A.M. #3 " .96"
5012	11:01	Conover at the Weather Bureau reports they have just received word from the Red Cross that the Otis dam has gone out and the residents of New Hartford have been warned to vacate within two hours. Reported this to Douglass and he said he would notify Tariffville, Unionville and Collinsville. Reported this to Waterbury L.D.
5013	11:15	The flow at Cabot is now 135-140,000 c.f.s. Mr. Mayott is talking to Mr. Mosher and this report came from him. They are afraid of a landslide at Cobble Mt. They have been experiencing trouble with Cobble Mt. lines this morning.
5014	11:21	The Hartford-Agawam lines are going to be put back in service because of an extreme emergency on the Western Mass. Cos' system. #1 Station at U.E.L. and Hampden stations are both coming on the line. The arrangements for the Hartford-Agawam lines to go in have been made by Mr. Mayott, Mr. Mosher and Mr. Soren.
5015	11:26	The report about the Otis dam is erroneous. Douglass talked with the gateman at Otis who said they have 10-15 feet to go before the reservoir is full. Reported this to Conover.
5016	11:29	Wilcock inquired about conditions on the Farmington. Told him the rumor about Otis Reservoir is not true, also told him about Turners Falls emergency. Checked with Unionville: Elevation at 9 AM 5.1' " 11 AM 9.3' Reported this to Wilcock

Friday March 20,1936

Record Number	Time A.M.	REMARKS
5379	9:22	Radio message finally got through to the coast guard. They will take food to men at South Meadow a nd Dutch Point. Asked South Meadow(Halloran) how many men are at South Meadow and Dutch Point. The disp.reported back 75 men at South Meadow and 15 at Dutch Point. This latter report given to Bisbee radio engineer.GLM
5380	9:32	Checked N.B.Tie: 11,000 from C.L.& P. Checked load: Devon 32,000 Rocky River on the line at 8:12 A.M.and regulated to 9:02 A.M.then Devon took the regulation. GLM
5381	9:40	Norton arrived with provisions for the C.V.P.E. and Sheldon St.crews. GLM
5382	10:33	Outside phone out of order for 1½ hours and still out. GLM
5383	10:54	Hartford disp. reports they have lost both T.F.lines GLM
5384	11:12	Asked Hartford disp.how much load they are carrying. The disp.(Halloran)reports T.F.lines are still out and now carrying 7,000 at South Meadow. They have tripped other feeders out of South Meadow. GLM
5385	11:25	Douglass reports that C-3 and D-4 lines are alive to South Meadow but are bad in the yard at South Meadow. #3 phase keeps swinging off scale. He said they should be opened if word can be gotten to Agawam. Told him we will try to get it through by short wave. R'R
5386	11:32	Message for South Meadow via short wave to have them be on the look out for a plane that will drop food on the roof of the South Meadow plant. R'R
5387	11:25	N.E.P.Co. At Cabot: Dam elevation 116.6 Tail race 82.1 30,000 on N.E. at Cabot. Do not know how much at Pittsfield. Water dropped in station about 1 foot. Can you get in touch with Millbury. 1/2 hour later: 30,000 on N.E. at Cabot. About 5-6,000 K.W.on #131 line into Pittsfield(not certain). Elevation at Cabot 116.6 Tail race 82.1 Water dropping fast at Vernon.Maximum was 19.3 and at 6 AM 18.6.Have reached Millbury.N.E.can furnish

Pages from the Log Book (March 18-March 25) of the Connecticut Valley Power Exchange

Power Station Log Shows Sequence of Events

The following entries briefed from the log book of the Connecticut Valley Power Exchange, at Sheldon Street, control point for the network of power stations throughout New England and New York State, provides at a glance the high spots of the series of events leading up to the great flood:

Monday, March 16—Normal spring freshet going down, flood stages 16 feet.

Tuesday, March 17—Warm heavy rains in the north, river rising rapidly.

Wednesday, March 18—9:08 a. m.—Vernon Power House (Vermont) shuts down.
10:51 a. m.—New Hartford Dam goes out.
11:21 a. m.—Transmission lines to Massachusetts ordered reconnected upon call for help from Massachusetts companies.
12:00 noon—Dutch point emergency steam station started up.
1:59 p. m.—Thirty per cent increase in river flow within 4 hours.

Thursday, 12:37 a. m.—Cabot Station (Mass.) shuts down.
4:20 a. m.—Hamden Steam Station (above Springfield) shuts down.
11:39 a. m.—Boilers ordered on at C.L.&P. Co. stations (Devon and Montville, Conn.)
12:15 p. m.—Transmission line to New York State ordered reconnected.
12:20 p. m.—Dutch Point Station, Hartford, goes out of service.
1:44 p. m.—South Meadows Station, Hartford, supplies Massachusetts load.
8:15 p. m.—Springfield Station goes out of service.
10:00 p. m.—Colt Dike gives way.

Friday, 2:25 a. m.—Transmission lines to C.L.&P. Co. in South Meadows hit by floating building; go out of service.
9:00 p. m.—Turbines running red hot at South Meadow—Pumps under water.
9:13 p. m.—Last turbine at South Meadows stops.
11:15 p. m.—Unionville power plant begins to pick up Elmwood load, and emergency connections are started to telephone company, gas company, hospitals, bakeries and milk companies from this plant.

Saturday, 1:28 a. m.—Transmission lines to Massachusetts on 50-foot towers in North Meadows come in contact with the flood waters and are short-circuited. Hartford isolated. Lights go out in South Meadows Station. River at 37 feet, or eight feet higher than any previous record. Construction begins on emergency substations.

Sunday, 5:00 p. m.—Power is given to large residential section and new feeders are cut in.
7:45 p. m.—Flood subsides slightly. Agawam lines come out of water, and are reconnected.

Connecticut Valley Power Exchange control room, as well as the stock and meter departments, was the scene of another grim struggle. Here is located the control of the vast network of power reaching throughout all of Connecticut into New York State, Pennsylvania, Massachusetts, Vermont and New Hampshire. The story of the situation at the spot is one of constant combat with failing communications.

On Wednesday, the eighteenth, telephone communication to the far-flung points covered by the exchange began to fail. Constant toll calls reporting the condition of the various stations to the north had to be routed through half of the state in order to get around the submerging areas. Finally the carrier current telephone, which utilizes the high tension wire, was the only means of communication left, and then even that failed. Finally a single wire was occasionally usable, and it was intermittently possible to place calls to the Pearl Street office from Sheldon Street but only by way of New Britain and Bristol telephone exchanges.

Radio in Car Saves Day

When it became evident that the situation was becoming more serious by the minute one of the men organized a chain of short wave amateur radio enthusiasts and kept in touch with the outside world in that way. When current went out at Sheldon Street, he was not subdued. He connected his set to an automobile for power and kept operating. In order to keep the car running, with water rapidly rising all about it, the men raised the car on a hurriedly-made wooden platform and kept it above the flood waters now several feet over the street level. The motor was kept free from the waters, and communication was kept with station WTIC and with the plants up and down the valley. In order to send word to the South Meadows plant messages were radioed from the car to the Coast Guard, which, in turn, took them to the isolated power house.

This radio is given credit, also, for aiding in the saving of lives. Early Friday morning when the Colt dikes gave way with a deafening roar, screams for help could be heard at the building, and a radio message was dispatched to the Coast Guard for assistance. This was not long forthcoming, and residents of the vicinity clinging to buildings, poles and trees in the inundated area surrounding the Sheldon Street plant were evacuated. Eleven refugees were taken in at the service building for the night.

The marooned people at this building, and at the Dutch Point and South Meadows plants were finally supplied with food Friday afternoon, as well as with blankets and other supplies. Getting into the building was an adventure in itself, according to those who tried it. A great current swept past the service building over the dike, and over the adjoining lumber yard. A rope was thrown from the building and fastened to a concrete post nearby. Rowboats came to this rope and were pulled around the wall, with waters of whirlpool force surging past.

In spite of failing telephone cables, failing current and other adverse conditions, the vital communication work, though limited, was kept up with few exceptions throughout the period. As soon as the flood began to subside, it was possible to reinstate more normal communications which were of immense help in re-establishing power to Hartford. Tremendous credit is given by the electric light people to the telephone company operators and trouble crews for their great assistance.

On Ann Street Front

Many hundreds of people were interested spectators beginning on Tuesday

Day Saturday Date March 21, 1936

RECORD NUMBER	TIME A.M.	REMARKS
5417	12:25	Lightning at Hartford. Reported this to Waterbury L.D. RWR
5418	12:45	Waterbury L.D. reports: Montville is at minimum load. Devon has 6,000. RWR
5419	12:50	Talked with Ripley about 10 minutes ago. He said they have about 1500-2000 available over their Newington lines that could be tied into the Elmwood section if it can be used. He said one of their men (Peck) was up in Wethersfield today and where the C.P. lines are tangled with the Unionville line is not very far from the road and he thought they could get out there and loop around it. They have men and material available and will be glad to send them anywhere that they can be of help. He said that some arrangements have been made by the manager of Middletown to have a transformer sent over there tomorrow A.M. from Plainville and that they are probably planning to make an emergency connection via East Berlin. Told him that we will try to get this information to someone in authority as soon as possible and will do as soon after daylight as we can get to Pearl St. by boat if we do not contact someone sooner. RWR
5420	1:07	George Mulanouskus on duty. Cloudy.
5421	1:12	Called Waterbury disp. Peck reports that Mr.Ripley is going to try to contact us over the short-wave from Waterbury after he gets back from lunch. Told Peck we will be listening for him. Peck said Falls Village reports 3rd unit on at Falls Village about 1:10 A.M. and picked up to full load. GLM
5422	1:28	Called Waterbury disp. Peck said a report came in over the short wave that Agawam reports ground on the C-3 and D-4 Hartford-Agawam lines; opened by hand at Agawam (no time when opened), ground probably on Hartford end. Entirely up to Hartford this report said. 1:00 A.M. GLM
5423	1:37	2-9306 alive and got Halloran at South Meadow over 6-1385. Reported to him the radio message on ticket #5422. He said the Hartford-Agawam lines are in trouble at the East crossing tower and somewhere North of there. He reported South Meadow had been running non-condensing and as the machine was heating and the

Wednesday March 25, 1936.

Record Number	Time P.M.	Remarks
5818	5:10	There is 14,000 to Hartford on Hartford-Agawam lines.
5819	5:25	Louisa Busher and Newberry left at 5:25 P.M. They will both return at 8 A.M. RWR
5820	5:35	Checked with South Meadow. They have not had any river elevations since 6 A.M. today when it was 28.4. They will give us any readings they get. ECB
5821	5:37	Mayott gave the following information to Hicock. The first tower on the C.P. lines at Meadow St. was fixed today. They hope to repair towers 5 and 6 from South Meadow by some time tomorrow. The mercury will probably be on the line by tomorrow night. A half hour ago there was only a foot of water on the condensing room floor. They expect the oil pump motors to be back tomorrow. They have 250# pressure in one low pressure boiler. They now have city water at the station. ECB
5822	6:03	Brown left for home. He will be back at 12 Midnight. Mayott left for Ray Gibson's house and then is going to Ed. Rice's for the night. RWR
5823	6:05	Arranged with Bill Frederich to put Brown's boat inside the building for the night. RWR
5824	6:14	Mr. Cutler asked if Mr. Mayott has left yet. Told him he left at 6 P.M. to see Ray Gibson. RWR
5825	7:28	Rauha at Millbury called and said they were arranging their schedule tomorrow to take power from Boston to supply a part of our requirements and if we thought South Meadow might be on the line tomorrow they would have to rearrange this. Told him South Meadow will not have a unit on before tomorrow night. The mercury unit may be on at that time, but any arrangements they make to get power from Boston will be O.K. RWR
5826	7:37	Checked load with Cabot: From N.E.P. at Cabot 46,000 at Pitts. 15,000 Cobble Mt. has 10,000. To Hartford on Hartford-Agawam lines 17,000. Asked Cabot to keep 60,000 on N.E.P. with Cobble Mt. until Cobble Mt. is down to minimum load and at 10 P.M. Cobble Mt. can shut down one unit. Checked conditions at Cabot and on the T.F. system. They cleared the bottom 6.6 Kv. bus and put a short circuit on the bus. This A.M. they tied #6 unit on to the bus for drying. They are putting 300 A. at 300 V. through #6 unit. About 3 P.M. #5 unit was started rolling and at 5 P.M. #4 was started. They will

Pages from the Log Book (March 18-March 25) of the Connecticut Valley Power Exchange

and Wednesday preceding the peak days, as the struggle carried on at the Pearl Street substation to combat the seepage from the Park River. As the Connecticut River rose, the Park River flowage continued to back up and seeped underground into the Pearl and Ann Street neighborhood. Fire department pumpers as well as several company pumpers were put into action and for over two days kept up a ceaseless struggle to hold the rising waters in check. However, the rise continued and, ten feet under water, the station had to be abandoned, throwing much of the center of the business district out of service.

Before this, and in order to keep the substation operating, and while water was rapidly mounting, the engineers worked in water up to their waists making repairs and attempting to shift 11,000 volt apparatus beyond the reach of the waters. A few minutes after they were forced to leave the floor or be drowned at their posts, the short-circuit which had been momentarily expected flashed and with a tremendous roar and shooting of flames, the substation went dark. This was late on Thursday, the nineteenth, bringing to an end a valiant day and night struggle.

With the Line Crews

The distribution department of the organization, which has in its charge the network of wires underground and overhead, serving the city and surrounding areas, had within a few days virtually re-routed the entire system to meet the emergency. Working 48 and 72 hours at a stretch these men faced danger constantly.

On Wednesday, the eighteenth, trouble began to appear in the feeders supplying the Southern New England Telephone Company and the Hartford Gas Company, due to water getting in their private transformer vaults when the Park River overflowed into their buildings. Emergency crews were dispatched, the troubles located, and service restored up to the time the area was entirely under water. All other switches on these feeders were cut out in order to maintain these vital services.

The following days as the out-of-state lines were crushed out of service, and with rising waters reducing the output of South Meadows plant, it became a fight against time to reduce the loads so that essential services could be maintained, and to cut out the faults which were causing short circuits in the flooded areas. Emergency lines were run, switching equipment installed, and feeders which had no power connected to feeders which did. For three days and nights this fight went on, and at the same time plans were executed to establish emergency connections with outside power sources beyond the flooded areas, in which the transmission lines were down.

Services Largely Retained

One of the most stirring episodes of a dramatic period is the story of how service was kept going to vital functions.

As the emergency grew swiftly to a peak, lines from the small water power stations at Unionville and Tarriffville were the last resources. These plants had always been considered valuable (for their fuel savings) but were never considered a vital part of the system. Now they were destined to actually save the day, through a complex system of emergency connections.

Chief among the vital services were the hospitals. Power was soon brought to St. Francis Hospital, Wildwood Sanitarium and Avery Convalescent Home. Hartford Hospital, being more central, presented added difficulties, but emergency connections were made before long. Similar emergency service was arranged for the milk companies and dairies. Thus milk was pasteurized and danger from infection avoided. In the same way the bread supply of the city was assured by emergency connection to many bakeries.

Emergency connection was also made with the West Hartford Exchange of the Telephone Company. Thus a large part of this vital service communication was maintained.

Gas service in Hartford, West Hartford and Wethersfield was available only through the Gas Company's holder in Parkville, which requires power for operation. Fortunately when a compressed air method, which had been attempted, was failing, an emergency electric connection was established, thus maintaining this service and avoiding possible dangers due to discontinuance.

The electric signal system of the Railroad Company from Springfield to New Haven was soon connected to the same lines, through which trains were enabled to operate in the normal way.

Behind the Front

As soon as the threat of complete inundation became apparent, an emergency organization was set up by the company, with a complete kitchen and cafeteria in the Pearl Street headquarters, where 24-hour service to and from the building was given by a canoe operating on Ann Street. Here stenographers and clerks proved their adeptness at cooking and serving lunches and warm meals to the army of help at work. A first-aid station was established with nurses and a doctor in attendance. Precautions were taken against infection. Emergency communications required the setting up of a complete system of messenger service, and the place was soon operating much in the manner of an army headquarters, busy and at top speed, but with efficiency and dispatch.

"No one of the company's organization can be singled out for especial recognition," said Viggo E. Bird, president. "Everybody, from office boy to department head, behaved wonderfully in the crisis."

Getting Back to Normal

Long before the power had finally given way, plans were made for restoring service. Simultaneously three temporary sub-stations were built. A crew of engineers and construction men from the Connecticut Light and Power Company at Waterbury, whose welcome offer of assistance was eagerly accepted by the Hartford Company, was dispatched to the scene and, working at terrific speed, installed a complete temporary sub-station, tapping into the line of the Farmington River Power Company. A large transformer, which had been partially built for the C. L. & P. Co. at the General Electric Company's Pittsfield plant, was dispatched to Bloomfield on a railroad flat car Saturday afternoon. On Sunday afternoon the transformer was in operation and serving the northwest section of West Hartford and Hartford.

At the same time, another temporary sub-station was under way at Wethersfield, where it was tapped onto the Connecticut Power lines. A third transformer was also set up in Windsor, connecting with the line to Agawam beyond the point where it was short-circuited by high water. With this set-up, as rapidly as possible, temporary connections were run to additional residential areas. Except in the badly flooded districts where extensive repairs were necessary, these hook-ups brought a large amount of power into large areas of the stricken city within a short time.

Of great assistance was the restoration to service of the Agawam line on Sunday

afternoon. As the flood subsided slightly, the lines came out of the water and were reconnected. This made possible the distribution of power to much of the center of the city and to industrial users as soon as the feeders could be extended.

Dramatic, as well as ingenious, was the rebuilding of the Connecticut Power Company transmission lines in the South Meadows, where towers had been demolished by floating buildings. A raft was hurriedly built and poles set in ten feet of water. The broken strands of the transmission line were then restrung on these poles, which were half floating and half on solid earth.

A Frequent Question

One of the questions asked of the company engineers was why one side of a street could have electric service when the other did not. It was explained that the distribution feeders are similar to the fingers of the hand, and that it is possible for a feeder running on one side of a street to be working, and the feeder on the opposite side to be out of commission, as they might come from different distribution centers, one of which might be in trouble.

Cooperation Appreciated

Too much cannot be said by the company executives in appreciation for the extraordinary help given by the other organizations and individuals in the emergency. Assistance of many kinds was poured forth in large and generous measures, Samuel Ferguson, chairman of the board of directors, said, particularly by the Connecticut Light and Power employees, who performed miracles of construction. The telephone company, in spite of its own troubles, arranged emergency connections and extended itself in expediting essential toll calls. The Hartford Fire Department loaned its pumpers. The New York Edison Company offered pumps and equipment, and the General Electric Company and other supply companies responded to the situation of assistance, according to the company executives.

When asked whether there was any truth to the rumors that the local company had declined offers of assistance from outside companies during the emergency, the company officials dismissed the thought as being so ridiculous as to be humorous. In explanation, it was pointed out that for two days preceding the crest of the flood here, the Hartford company responded to urgent pleas from Massachusetts and elsewhere for help and transmitted large amounts of power to these companies from South Meadows station. When, later, Hartford needed help, these companies responded in the same cooperative manner and helped make possible restoration of service at Hartford, in spite of the flooding and breaking of the transmission lines.

Appreciation

The company officials cannot say too much, also, for the splendid support they received from their consumers during the period of inconveniences to which they were subjected. Hundreds of people were quick to say how much the emergency had heightened their appreciation of the service of electricity in their everyday activity, and how much they were impressed by the success in restoring service.

Factories have cheerfully reduced their use of power. The Manufacturers Association offered its assistance and support. Consumers having electric water heaters wrote in to say that they never ran out of hot water, even after two days of no current. Range users cheerfully cooked meals in the furnace or fireplace. One humorous incident occurred at the Society for Savings. It was noticed that a guard was stationed at the front door. When asked the reason, an official said that they were trying to save light and had a man out in front to tell people that the bank was open for business and to show depositors how to get into the bank.

Tribute by Officials

Appreciation to consumers, as well as to company employees and others, is expressed by Mr. Ferguson, chairman, and Viggo E. Bird, president, in the following statement:

"We take this opportunity to express our appreciation to our consumers for their patience during the inconveniences to which many were subjected, and for their cooperative attitude throughout this trying time. We pay sincere tribute to the members of our organization who underwent inconceivable hardships and actual personal danger to fulfill our obligation of service.

"Nature has seldom before given New England such a striking demonstration of its power to destroy. Such an evidence of the strength and force of the elements brings into sharp relief the utter humbleness of man to attempt to conquer her. We are bending every effort to return to normal activity, and are eager to lend a hand in seeking to prevent, if possible, a similar disaster for at least another 200 years."

Intensified Selling

(*Continued from page* 128)

ployees in that division, including janitors and scrub women, who have sold some current consuming device in every campaign that was run during the year of 1935. Their selling job entitles them to membership in the "Hundred Percent Club."

What does such a plan do to improve morale? Do you think you will have a man disagreeable to a customer if he is trying to sell him something? You will not. Every employee is looking after the customer.

Other departmental company employees become just as much interested in sales as the salesmen themselves. Disloyalty is almost unheard of. Quarreling with our customers is a thing of the past. The employee is ready to render a service to his customer whenever *his* customer asks for it.

We have almost abolished a Complaint Bureau in the Atlanta Office. Substantially, we have no more high residential bill complaints because the rate is such, the service is such and the employee attitude is such that the customer is so well satisfied with what he receives that he doesn't feel he has any grounds for complaint.

These intangibles are worth something. The whole plan, if you can get it going, just makes for "one big, happy family."

As I stated in the beginning, the whole program depends, among other things, upon this: there is a duty resting upon you men to put the burden upon your management, to assist with the necessary funds and the necessary support from the top to the bottom of your companies, if you are to get this job done.

You are going to say, "My management won't do that," or "If I started out on that sort of a program, it would break my company. We just can't afford it," or "This might happen, or something else might happen," and where you say or think that, then all the "ghosts what ain't" will jump right up in front of you.

Therefore, I want to leave with you one final thought. I take it from a man whose reputation for leadership has enhanced every day since his death. I want you to know what he told some of his people when they were shilly-shallying and dilly-dallying, afraid of this and afraid of that. He wrote them simply this: "We must decide between the positive loss by inactivity and the possible risk by action."

The Electric Range Market—Today and Tomorrow

(*Continued from page* 124)

lems in approaching a market that is new to them.

The developments that are coming rapidly in the sale of complete electric kitchens makes this appliance not only desirable but necessary. This means that dealer participation in selling electric ranges is going to be much easier in the future and productive of a greater sales volume.

* * *

Some of the recent surveys show an astonishing need for new cooking equipment. One shows, that due to small sales of all types of cooking equipment during the depression years and the relentless march of obsolescence, that the American families are cooking on ranges little better than a makeshift. It shows that at least 64 per cent of the ranges of all types that are now in service are obsolete in design, inefficient in performance and should be replaced.

Another survey shows that 25 per cent of the homes actually want a new range and are giving consideration to buying one now.

Housewives are being made conscious of their need for new cooking equipment—and for an electric range—by the greatly increased advertising programs of the range manufacturers in women's magazines and by the increased local advertising and promotion by utilities and dealers.

The electric range manufacturers believe that the National Kitchen Modernizing Bureau is going to be very successful—that it will arouse consumer interest—and create a desire for a modern electric kitchen—which requires an electric range. We electric range manufacturers are not only supporting the Kitchen Modernizing Bureau activities in spirit and enthusiasm but are contributing financially in a rather large way—and it is because we believe in it so sincerely. We believe that to be modern, it must be electric—and if it is electric—it must have an electric range.

Have you noticed how all the manufacturers of all types of kitchen equipment are tying in with this activity? Pick up any popular magazine and you will find a considerable number of "Modern Kitchen Advertisements"—many of which show electric ranges.

The women's magazines, editorially, have also been tying in with this activity surprisingly well. One of the recent issues of a popular magazine states in connection with their kitchen modernizing articles the following: "The author of Arabian Night legends with his fantastic tales of Aladdin never thought of such a mighty and astonishing array of achievements as those performed by electricity." Statements like this, and many others that are constantly appearing, go a long way with the public—and all of these factors—advertising, magazine articles and the kitchen modernizing program combined—are carrying a powerful message to the public and are resulting in rapidly increasing public acceptance.

And in most communities this public can now buy attractively designed, well built electric ranges with excellent performance at extremely low prices—on longer and more favorable terms—have them installed at a reasonable cost—and operate them on electric rates that are satisfactory.

This, added to the fact that many new rate reductions have been proposed in various sections and rural line extensions are being made, is causing a further expansion of the market and is opening up additional sales possibilities for manufacturers, distributors, utilities and dealers.

Someone very aptly said: "Little by little and unobtrusively, the silent servant, Electricity, has entered our homes and our lives, and the transition has been so gradual and subtle that some of us do not realize its importance in our daily work unless we stop and think."

In our summary, we must turn again to the public—What do they want? What do they think? I fully believe that they are more conscious of this Silent Servant than most of us imagine. Why? Because we find increasing interest—increasing sales—and at such a rapid rate that one cannot help but become very enthusiastic over the possibilities for the future growth of this business. I sincerely believe that the electric range is on the threshold of a great expansion that will be beneficial and profitable to manufacturers, distributors, utilities, dealers and consumers.

In closing, I must add—The electric range manufacturers are fully conscious and appreciative of the tremendous amount of advertising, promotion, selling and educational work that has been done by the utilities in the past—and which is largely responsible for the enviable position of this industry today. Reports indicate that you plan a still larger promotional, selling and educational program in 1936. If we all keep up this good work and combine our efforts in solving the few remaining problems—I am sure the future sales of electric ranges will make headline news.

Commercial Progress Viewed From the Field

(*Continued from page* 137)

That is that pile of clothes you are going to wash and iron in the next 14 years."

"What are those lovely brown foothills flecked with green?"

"Those aren't foothills. That is the pile of potatoes and carrots you are going to prepare and serve."

She would ask, "What is that beautiful plain?"

"That isn't any plain. That is the thousands of square miles of floor space that you are going to have to scrub and dust and sweep and clean in the next fourteen years."

She would tremble and look away and then ask, "What city is that on the horizon?" In the language of the men in the appliance department I would say, "Honey, that isn't a city. That is nine stacks of dishes as tall as the Empire State Building that you are going to wash in the next fourteen years."

Do you think she would go back to that church? She would go right out through that field. And there isn't a man in this room good enough to sell her, either.

There isn't an industry in this country that has the dramatic, human, appealing story to tell that we have, and when the public knows it, gentlemen, your troubles are over. Get public opinion set right, and you won't have any political problem.

Here in this commercial department today, we are the shock troops, and every branch in this industry is just as much affected as any other branch.

With a good public attitude, factories will run more steadily, salesmen will make more money, distributors will make more money, and more and more kilowatt hours will be sold.

A Revised Resuscitation Chart, overall size 18x12½ inches, printed in red and black on heavy durable stock, is now available from the Institute at the following prices: 1-10 copies, 10¢ each; 10-100 copies, 5¢ each; 100-1000 copies, 4¢ each; 1000 or more copies, 3¢ each.

RESUSCITATION *by the* Prone Pressure Method

RECOMMENDED BY

EDISON ELECTRIC INSTITUTE

420 LEXINGTON AVENUE, NEW YORK

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Follow These Instructions Even if Victim Appears Dead

Electrical Shock Free the victim from the electrical contact as promptly as possible. Use a dry stick, dry rope, dry coat or other non-conductor. The use of your own hands without protection is dangerous and may add another victim to the accident.

Gas Asphyxiation Remove the victim from the gas atmosphere into fresh air. Do not breathe the gas yourself even for a short time. If it does not overcome you it will cut down your strength.

Follow These Instructions Even if Victim Appears Dead

Drowning Quickly remove the victim from the water and place on ground or other hard surface. Start artificial respiration at once. The pressure you must exert is the best means of forcing water out of the lungs and breathing passages.

INSTANTLY ATTEND TO THE VICTIM'S BREATHING

As soon as victim is clear of conductor rapidly feel with your finger in his mouth and throat and remove any foreign body (tobacco, false teeth, etc.). If mouth is tight shut, pay no more attention to it until later. Do not stop to loosen patient's clothing, but immediately begin actual resuscitation. Every moment of delay is serious. Proceed as follows:

1.—Lay the patient on his belly, one arm extended directly overhead, the other arm bent at elbow and with the face turned outward and resting on hand and forearm, so that the nose and mouth are free for breathing. (See Fig. 1.)

2.—Kneel straddling the patient's thighs with your knees placed at such a distance from the hip bones as will allow you to assume the position shown in Fig. 1.

Place the palms of the hands on the small of the back with fingers resting on the ribs, the little finger just touching the lowest rib, with the thumb and fingers in a natural position, and the tips of the fingers just out of sight. (See Fig. 1.)

3.—With arms held straight, swing forward slowly so that the weight of your body is gradually brought to bear upon the patient. The shoulder should be directly over the heel of the hand at the end of the forward swing. (See Fig. 2.) Do not bend your elbows. This operation should take about two seconds.

4.—Now immediately swing backward so as to completely remove the pressure. (See Fig. 3.)

5.—After two seconds swing forward again. Thus repeat deliberately twelve to fifteen times a minute the double movement of compression and release, a complete respiration in four or five seconds.

6.—Continue artificial respiration without interruption until natural breathing is restored, if necessary, four hours or longer, or until a physician declares the patient is dead.

7.—As soon as this artificial respiration has been started and while it is being continued, an assistant should loosen any tight clothing about the patient's neck, chest or waist. KEEP THE PATIENT WARM. Do not give any liquids whatever by mouth until the patient is fully conscious.

8.—To avoid strain on the heart when the patient revives, he should be kept lying down and not allowed to stand or sit up. If the doctor has not arrived by the time the patient has revived, he should be given some stimulant, such as one teaspoonful of aromatic spirits of ammonia in a small glass of water or a hot drink of coffee or tea, etc. The patient should be kept warm.

9.—Resuscitation should be carried on at the nearest possible point to where the patient received his injuries. He should not be moved from this point until he is breathing normally of his own volition, and then moved only in a lying position. Should it be necessary, due to extreme weather conditions, etc., to move the patient before he is breathing normally, resuscitation should be carried on during the time that he is being moved.

10.—A brief return of natural respiration is not a certain indication for stopping the resuscitation. Not infrequently the patient after a temporary recovery of respiration, stops breathing again. The patient must be watched and if natural breathing stops, artificial respiration should be resumed at once.

11.—In carrying out resuscitation, it may be necessary to change the operator. This change must be made without losing the rhythm of respiration. By this procedure no confusion results at the time of change of operator and a regular rhythm is kept up.

The ordinary and general tests for death should not be accepted and any doctor should make several very careful examinations and be sure specific evidence, such as the onset of rigor mortis, is present before the patient is pronounced dead, and resuscitation stopped.

Do not stop or interrupt resuscitation until patient breathes or rigor mortis (stiffening of the body) sets in

FIGURE 1—HANDS IN POSITION

FIGURE 2—PRESSURE ON

FIGURE 3—PRESSURE OFF

POWER SALES ITEMS

AIR CONDITIONING

"Instruments Needed to Operate Air Conditioning Plants Properly." *Heating, Piping and Air Conditioning,* March, 1936, p. 139. Keeney Publishing Company, 6 North Michigan Avenue, Chicago, Ill.

This article describes some operating data necessary for an air conditioning operating report.

"What Air Conditioning Did for My Business." *Heating, Piping and Air Conditioning,* March, 1936, p. 140. Keeney Publishing Company, 6 North Michigan Avenue, Chicago, Ill.

The article sets forth some very good information on the reaction of commercial establishments which have installed air conditioning and from a commercial viewpoint should be carefully studied by all commercial men.

COMMERCIAL COOKING

"Tenth Annual Commercial Cooking Survey," by B. M. Riker. *Electric Light and Power,* March, 1936, pp. 32-34. Bennett-Watts-Haywood Company, Publishers, 360 North Michigan Avenue, Chicago, Ill.

DIESEL ENGINES

"Ignition and Combustion of Diesel Fuels," by G. D. Boerlage and J. J. Broeze. *Power Plant Engineering,* March, 1936, p. 165. Technical Publishing Company, 53 West Jackson Blvd., Chicago, Ill.

A discussion of recent developments and tests before the annual meeting of the ASME.

"Small Diesel Solves Creamery Power Problem," by J. C. Elmburg, Fairbanks, Morse & Company. *Diesel Power,* February, 1936, p. 84. Diesel Publications, Inc., Publishers, 192 Lexington Avenue, New York City.

Comparison of Diesel and purchased power costs after two months' operation of an electrically controlled Diesel which will retire itself in four years.

"Ice Rink Profits from Diesel Power Plant." *Diesel Power,* February, 1936, p. 86. Diesel Publications, Inc., Publishers, 192 Lexington Avenue, New York City.

Description of an 80 hp. Diesel with three years' operating costs, which is compared with a 75 hp. motor on a duplicate compressor. The Diesel plant paid for itself in one year and was able to carry a 30 per cent overload for seven hours when the motor eventually burned out.

"Hill Diesel Engine Company Announces New Diesel." *Diesel Power,* February, 1936, p. 89. Diesel Publications, Inc., Publishers, 192 Lexington Avenue, New York City.

Description of a horizontal opposed-piston, completely balanced 2 cycle Diesel which is suitable for garages, machine shops, creameries, etc.

"Caterpillar Enters Industrial Field with V-8 Diesel." *Diesel Power,* February, 1936, p. 90. Diesel Publications, Inc., Publishers, 192 Lexington Avenue, New York City.

A description of the V-8 Diesel, product of the recently established industrial engine division. Brief descriptions of two other portable units are given.

"The Diesel Rang the Bell in 1935." *Diesel Power,* February, 1936, p. 81. Diesel Publications, Inc., Publishers, 192 Lexington Avenue, New York City.

Purchase of Diesels during the year amounted to 1,200,000 hp., but almost 1,000,000 hp. was for mobile equipment. Municipal lighting plants are expected to become less a factor in Diesel sales due to government hydro-electric plants and utility rate reductions. Industrial markets will continue to expand, and it is now the second largest market.

ELECTRIC FURNACES

"Annealing Sheet and Strip Steel with the Use of Electric Furnaces," by A. N. Otis, General Electric Company. *Iron and Steel Engineer,* February, 1936, p. 1. Association of Iron & Steel Electrical Engineers, Publishers, 1018 Empire Building, Pittsburgh, Pa.

A paper describing preliminary experimental results obtained from annealing different material types of strip and sheet steel in continuous Bell-type cylindrical and Box-type furnaces. Steel with high carbon content, in order to get the material soft, needs a longer heating time and a slower cooling rate than is practicable with a continuous furnace. Differences in crystal structure at the edge as compared with the center of an ingot offers complications. Bell-type furnaces are equally suited to high or low carbon steel, and they have a large tonnage capacity per unit of floor space due to short annealing cycle and vertical loading. Box-type have approximately the same advantages as for the Bell-type. Curves and charts of the various heating and cooling cycles are given.

HOTELS

"Control Matches Boiler Operation to Hotel's Heat and Steam Requirements." *Heating, Piping and Air Conditioning,* March, 1936, p. 135. Keeney Publishing Company, 6 North Michigan Avenue, Chicago, Ill.

This article describes an installation in a two hundred and fifty room hotel at Decatur, Ill., in which there are installed gas fired boilers equipped with a very unique control equipment for handling the various heating requirements in a hotel of this size. The article also contains some factual data concerning gas consumption. Summing up this article there is considerable to give thought for the operation of boilers to provide the heat requirements under such variable conditions.

POWER FACTOR

"Power Factor and Power Costs." *Industrial Power,* February, 1936, pp. 38-44. Maujer Publishing Company, 505 Pleasant Street, St. Joseph, Mich.

A simple treatment of the subject with notes on remedies for poor power factor and the savings that can be effected.

POWER SALES

"Selling Power to Industry," by W. S. Finlay, Jr. *Electrical World,* Feb. 29, 1936, p. 611. McGraw-Hill Publishing Company, Inc., 330 West 42nd Street, New York City.

Day of "Come and Get It" is over. New approach by market analysis and knowledge of industry. Organized selling will get results.

"Get Your Own Facts in Selling Power," by R. E. Schwalm, Nebraska Power Company. *Electrical World,* Feb. 15, 1936, p. 74. McGraw-Hill Publishing Company, Inc., 330 West 42nd Street, New York City.

A small article in which operating facts helped to sell purchased power.

PURCHASED POWER

"Purchased Power Drills Deep for Oil," by Leo H. Towers, Tulsa, Okla. *Electrical World,* Feb. 15, 1936, p. 31. McGraw-Hill Publishing Company, Inc., 330 West 42nd Street, New York City.

Describes very briefly the equipment used to drill 10,000 ft. down to the deepest producing sand in the world.

RAILROAD ELECTRIFICATION

"The Pennsylvania Railroad Electrification: New York-Washington. Part I—System Electrification," by W. D. Bearce. *General Electric Review,* February, 1936, pp. 100-107. General Electric Company, Publishers, Schenectady, New York.

In Part I of this article the author discusses the Pennsylvania system and the system of electrification. The system of electrification includes descriptions of the transformer substation, switching station, trolley sectionalizing, transmission lines, and control of power. Part II of this article will appear in a later issue.

VENTILATION

"Selecting Motors and Controls for Large Fans," by R. C. Allen, Westinghouse Electric and Manufacturing Company, Philadelphia, Pa. *Electrical World,* Feb. 15, 1936, p. 27. McGraw-Hill Publishing Company, Inc., 330 West 42nd Street, New York City.

The calculation of acceleration time and current, the protection during starting and running, the torque reversal with drop of speed, and the synchronizing requirements are covered.

WELDING

"Modern Welding Technique." *Industrial Power,* January, 1936, pp. 30-33. Maujer Publishing Company, 505 Pleasant Street, St. Joseph, Mich.

The fundamentals of electric and gas welding explained.

"Keep 'Em Sold"

(*Continued from page* 108)

susceptible to competitive forces than those whose financial conditions and outlooks dictate restricted policies.

To carry out successfully the type of program I have outlined will require an adequate sales expense appropriation—probably not provided for in the average utility company. An analysis of your company's sales expenses will help determine whether your own sales budget permits the same degree of sales effort afforded by the budgets of your domestic and commercial sales departments.

Finally, let me impress upon you that the best plans in the world, the finest salesmen in the country, the most liberal expense budgets possible, and the wisest supervision and direction will accomplish but little unless they are part of a living, integrated unit imbued with the understanding of the value of a complete power service to our customers—a service so complete and of such quality that each customer literally likes and wants to do business with us. Such a type of service will do much to create a better understanding between all of our customers and our industry, an understanding so urgently needed at the present time.

CONVENTIONS AND MEETINGS

APRIL

20-24 Midwest Power Engineering Conference, Chicago, Ill.
23-25 Electrochemical Society, Cincinnati, Ohio.
27-30 Chamber of Commerce of the U.S.A., Washington, D. C.
29-30 Missouri Association of Public Utilities, St. Louis, Mo.
30 Southeastern Electric Exchange, Fort Sumter Hotel, Charleston, S. C.

MAY

1 Southeastern Electric Exchange, Fort Sumter Hotel, Charleston, S. C.
1 Missouri Association of Public Utilities, St. Louis, Mo.
4-9 National Electrical Wholesalers, Hot Springs, Va.
10-11 Hydraulic Power Committee, Statler Hotel, Detroit, Mich.
10-11 Accident Prevention Committee, Statler Hotel, Detroit, Mich.
11-12 Prime Movers Committee, Statler Hotel, Detroit, Mich.
11-12 Electrical Equipment Committee, Statler Hotel, Detroit, Mich.
11-14 National Fire Protection Association, Atlantic City, N. J.
12-13 Transmission and Distribution Committee, Statler Hotel, Detroit, Mich.
17-22 National Electrical Manufacturers Association, Hot Springs, Va.
25-28 National Association of Purchasing Agents, Inc., Roosevelt Hotel, New Orleans, La.
28 National Board of Fire Underwriters, Waldorf-Astoria Hotel, New York, N. Y.

JUNE

1-4 EDISON ELECTRIC INSTITUTE, Opera House, Municipal Auditorium, St. Louis, Mo.
17-20 The American Society of Mechanical Engineers, Dallas, Texas.
22-25 National Association of Cost Accountants, Netherland Plaza Hotel, Cincinnati, Ohio.
22-26 American Institute of Electrical Engineers, Pasadena, Cal.
24-26 Canadian Electrical Association, Manoir Richelieu, Murray Bay, Quebec, Can.
29-30 American Society for Testing Materials, Chalfonte-Haddon Hall Hotel, Atlantic City, N. J.

JULY

1 American Society for Testing Materials, Chalfonte-Haddon Hall Hotel, Atlantic City, N. J.

SEPTEMBER

7-12 Third World Power Conference, Washington, D. C.

OCTOBER

26-30 American Gas Association, Atlantic City, N. J.

NOVEMBER

30 American Society of Mechanical Engineers, New York, N. Y.

DECEMBER

1-4 American Society of Mechanical Engineers, New York, N. Y.

Southeastern Electric Exchange Conference

THE Third Annual Conference and business meeting of the Southeastern Electric Exchange will be held at the Fort Sumter Hotel, Charleston, S. C., on April 30 and May 1. The program includes many important subjects for discussion by prominent men on sales, engineering and other phases of the industry.

Wendell L. Willkie, President of the Commonwealth and Southern Corporation, will address the gathering at a banquet on the night of April 30. Following Mr. Willkie's address, the Society for the Preservation of Spirituals, a unique organization composed of a number of men, women and children of Charleston, will give a performance.

Some of the features of the entertainment planned for the ladies is an interesting trip to some of the old Southern plantations which have been preserved in their original condition, a boat trip up the Ashley River, which gives a view of the beautiful Magnolia and Middleton Gardens which cannot be obtained from any other angle, and a trip around Charleston Harbor visiting Forts Sumter and Moultrie.

Plaques Awarded for Safety Records

THE Consolidated Gas, Electric Light and Power Company of Baltimore has awarded bronze plaques to five electric operating departments within the past several years in recognition of no accident records maintained for three or more consecutive years. The latest to qualify were the Electric Construction Department and the Electric Distribution Department, Southern District.

A special Safety Barbecue and Oyster Feast was held at one of the Company's substations where Mr. Charles M. Cohn, vice-president, presented the plaques to the supervisors of the honored departments.

Convention Notes

(*Continued from page 138*)

at the registration counter at the Auditorium. Busses will leave the Hotel Jefferson at about 3 p.m., returning around 6 p.m.

There will be dancing each evening in the Gold Ballroom of the Hotel Jefferson beginning at 9 o'clock. Through the courtesy of the Municipal Theatre Association the delegates to the Convention have been invited to a concert to be held also in the Gold Ballroom Wednesday evening. Solos and duets by a number of the principals of the famous St. Louis Municipal Opera cast, as well as chorus singing of some ninety-six voices, will be features of the concert. Dancing will follow the concert.

936